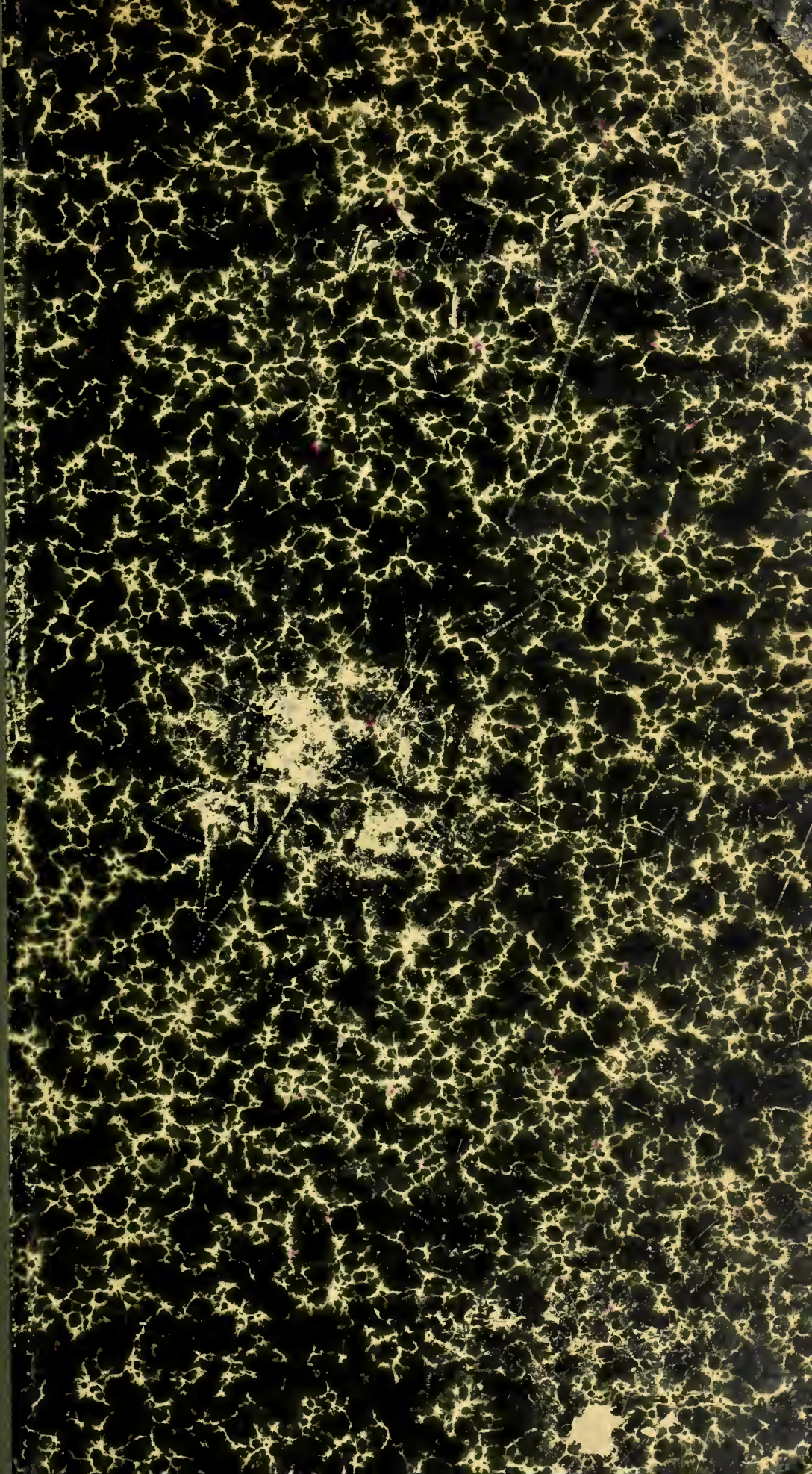


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FRACTURES OF BOTH BONES OF THE LEG

FREDERICK A. JOSTES, M.D.

AND

MAURICE B. ROCHE, M.D.

ST. LOUIS

When the subject of fractures of both bones of the leg is broached, some of the following questions probably come to mind: What are the most important things to be mindful of in the treatment of such fractures? What type can be reduced immediately and immobilized in plaster with assurance that the bones will not slip and override? What type necessitates a period of traction for proper and sustained reduction? What is wrong with skin traction? What types must be handled with skeletal traction if reduction is to be satisfactory? What about such fractures when they are not simple but compound? What are the criteria for good alignment especially if joints are involved? When is open reduction to be considered? What is the time required for union? What are the complications following weight-bearing if the weight-bearing line has not been restored adequately?

What are the most important things to be mindful of in treating fracture of both bones of the leg?—Reduction should be carried out immediately if possible. Proper reduction and retention of the tibial fragments are of primary importance; of the fibula secondarily so. Care should be taken to prevent rotation of the tibial axis and if present to correct adequately. The horizontal surfaces of the normally apposed tibia and astragalus must be restored and retained. Adhesions and ankylosis of the involved joint must be avoided. The restoration of the normal weight-bearing line through the knee joint and the level of its articulating surfaces must be effected. Shortening of the extremity must be prevented. Delayed union, fibrous union and nonunion are more common in fractures of the leg than in any other part of the body.

What type can be reduced immediately and immobilized in plaster with assurance that the bones

will not slip and override?—This can be done with simple transverse fractures without comminution when seen within twenty-four hours after the injury and when reduced end on end so that there is two thirds apposition without angulation; also transverse comminuted fractures in which displacement with overriding has not occurred. Such reduction should never be attempted without general anesthesia. An examination should be made before reduction in order to determine the extent of soft tissue damage. Rupture of the posterior tibial artery results in swelling of the calf of the leg with pallor and coldness of the foot. When the anterior tibial artery is ruptured there is disappearance of pulsation of the dorsalis pedis artery and swelling of the anterior aspect of the leg. Extension of the toes is not possible if the deep peroneal nerve has been divided and flexion of the toes is not possible if the posterior tibial nerve has been divided; eversion of the foot cannot be carried out if the superficial peroneal nerve has been divided. These same observations should again be made following the manipulative procedure for reduction. It is needless to add that roentgenograms should precede and follow the reduction. The plaster which is applied should fix the foot at right angles to the leg, should include the joints above and below the fracture line and should be bivalved immediately following application.

There are two types of fractures of the leg bones, transverse and oblique or spiral. The oblique or spiral is the result of force indirectly applied, a torsion force that fractures both bones at different levels. The transverse type of fracture is the result of force directly applied at the fragment site and in most instances there is also comminution of the fragments at the site of impact. For this reason there are many transverse types of fractures which because of the loose fragments would again slip into an overriding position.

REPORT OF CASES

Case 1. W. S., a police officer, aged 41 years, was admitted to St. Louis County Hospital on October 17, 1933, with an injured left lower extremity. An automobile had struck his motorcycle from the side, throwing him to the pavement. Examination disclosed a compound

From the Department of Surgery, Washington University, and the St. Louis County and Deaconess hospitals.

Read at the 81st Annual Session of the Missouri State Medical Association, Jefferson City, May 2-4, 1938.



Fig. 1. (Case 1.) A and B. Transverse comminuted fractures with almost complete apposition and minimal degree of displacement. Immediate immobilization in plaster resulted in good healing with no evidence of slipping as attested to by C and D.

fracture of both bones of the leg. The skin lesion was a very small puncture wound. Roentgenograms showed the fracture of the tibia to be comminuted involving the upper third of the shafts of both bones and little or no displacement and no shortening. The extremity was immediately immobilized in plaster which later was windowed for wound dressings. Healing of the wound and fracture sites progressed uneventfully. (Fig. 1.)

Case 2. L. F., a male, aged 16 years, was admitted to the St. Louis County Hospital on November 24, 1935,



Fig. 2. (Case 2.) A. Fractures of distal ends of tibia and fibula with fracture dislocation of tibial epiphysis. B. Reduction carried out immediately under general anesthesia followed by plaster immobilization. Slipping of fragments need not be feared following immediate reduction of fracture combinations of this type.



Fig. 3. (Case 3.) Two errors are demonstrated in this instance. The attempt at manual reduction was delayed until twenty-four hours after admission. Skeletal traction should have been employed immediately instead of an attempt at manual reduction and plaster immobilization. A and B. Original deformities showing oblique fractures of both bones of the leg. C and D. Little reduction resulted from an attempt at manual reduction under general anesthesia. This was followed by plaster immobilization. E and F. Demonstrating the extent of the slipping of fragments following plaster immobilization and without a period of skeletal traction.

with an injured left ankle sustained in a fall from his bicycle. Further examination disclosed a complete oblique fracture involving the lower third of the fibula and a fracture dislocation of the distal tibial epiphysis. Reduction under general anesthesia was carried out immediately and a plaster cast applied. Uneventful healing followed. (Fig. 2.)

What type necessitates a period of traction for proper and sustained reduction?—Probably all fractures that are not seen within twenty-four hours after the injury require a period of traction. The oblique or spiral type especially necessitates a period of traction for proper reduction and maintenance of such. The transverse markedly comminuted fractures are, for all intents and purposes, oblique so far as reduction is concerned and they too require such a period of effective, sustained traction. To be effective traction must be started as soon after the injury as possible before much shortening of the tissues has occurred and before the overriding of the fragments has increased. The amount of traction should be stepped up to a maximum almost immediately in order to obtain complete reduction in the shortest time possible after which it may be decreased gradually. The various technics for maintaining skeletal traction within a

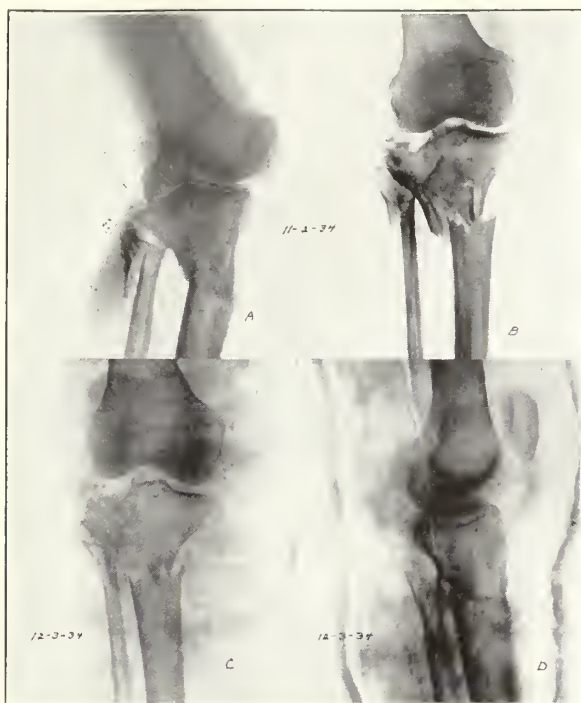


Fig. 4. (Case 4.) Because of the atrophied muscles of this elderly patient and the two thirds approximation to begin with, skin traction might be considered successful in this instance of fracture of both bones. A and B. Original deformity. C and D. Postreduction views showing alignment after several weeks of skin traction.

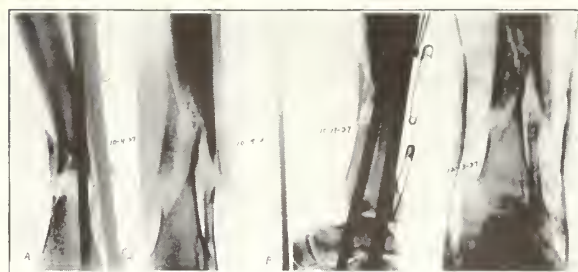


Fig. 5. (Case 5.) Comminuted transverse fractures of both bones allowed to remain in plaster boot ten days. A and B. Original deformity with one inch of shortening following removal of plaster. C. Lateral view taken after two weeks of skeletal traction. D. Anteroposterior view showing plaster immobilization following skeletal traction and coaptation splint for lateral alignment. Union was retarded. Following skeletal traction and plaster immobilization, a walking caliper was employed for several months before fragments became solid.

plaster cast applied immediately after reduction will not be considered.

In contrast to case 2 is the following in which twenty-four hours after injury, reduction under general anesthesia was attempted followed by plaster immobilization. The fragments slipped, overriding resulted and the original deformity with shortening recurred within the plaster boot. No sustained period of traction had been employed.

REPORT OF CASE

Case 3. A. M., a janitor, aged 47 years, was admitted to St. Louis County Hospital on November 21, 1933, following an injury to his left lower extremity. His leg had been caught between a garage door and a motor car backing up. Roentgenograms disclosed a fracture of both bones of the leg with overriding of the tibial fragments and shortening. On November 22, 1933, twenty-four hours after the injury, the leg was manipulated under general anesthesia and a plaster cast applied. Postmanipulative roentgenograms disclosed fairly satisfactory reduction. (Fig. 3.)

On December 11, 1933, the patient was readmitted to the hospital. Roentgenograms disclosed a return to the original deformity with shortening. Open reduction at this late date was refused by the patient. A new plaster cast was applied and the patient was discharged.

Needless to say, sustained traction should have been used in this case until the fragment ends were fairly fixed by callus before plaster immobilization was employed.

What is wrong with skin traction?—In strong, muscular patients skin traction is generally ineffec-

tive. It serves to traumatize the skin and render it indisposed to any future surgical procedure such as open reduction or the insertion of a pin. When open reduction or insertion of a pin becomes necessary and the skin has been so traumatized, a further interval of waiting is necessary until the skin has healed. Skin traction often amounts to costly temporizing for after from three to four weeks have elapsed and reduction has not been effected, it is necessary to break up whatever callus has formed before skeletal traction is started. This contributes toward nonunion. Skin traction does not add much to the comfort of the patient.

REPORT OF CASE

Case 4. C. D., aged 66 years, housewife, was admitted to St. Louis County Hospital on November 2, 1934, with multiple injuries including fractures of both bones of the right leg resulting from being run down by a motor car. General condition was satisfactory. Roentgenographic examination disclosed severely comminuted fractures of the upper third of the tibia and fibula with impaction and angulation of the tibial fragments and shortening. Skin traction was employed for two weeks and then the limb immobilized in plaster. (Fig. 4.)

In this instance, a case of an elderly female with atrophic muscles and little displacement of the fragments, skin traction is at least more effective than in younger subjects.

What types must be handled with skeletal traction if reduction is to be satisfactory?—Sliding, oblique fractures in strong muscular patients can be reduced adequately by skeletal traction only. Where possible this traction should be applied to the leg with the knee flexed in order to relax the strong gastrocnemius. Care should be taken that the foot is kept at right angles to the leg and not allowed to assume a "drop" position. Roentgenograms should be taken at short intervals and thus one is enabled to determine whether or not one must resort to open reduction and internal fixation. In general, it is the authors' preference to use skeletal traction for these fractures whenever the expedient of traction is necessary.

The following two cases offer instances in which adequate reduction was not attempted until some



Fig. 6. (Case 6.) Fracture of both bones of the leg treated by an osteopath for four weeks with skin traction. A and B. Position of overriding fragments held by fibrous callous formation. C and D. Reduction and alignment of fragments after manual breaking up of callus and three weeks of skeletal traction. Skeletal traction in the beginning is indicated in this type of fracture.

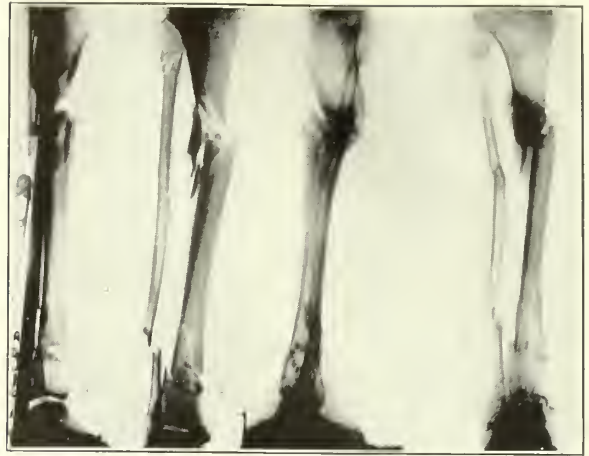


Fig. 7. (Case 7.) Multiple comminuted fractures of both bones (compound), obviously a case for skeletal traction. C and D. Months later after extended period of skeletal traction followed by plaster immobilization and later by a walking caliper.

time after the occurrence of the fracture, in the first instance ten days after the fracture and in the second instance four weeks after the fracture.

REPORT OF CASES

Case 5. Mr. C. E. R., real estate agent, aged 45 years, was injured during an automobile accident ten days previous to admission to Barnes Hospital on September 28, 1937. He had sustained a fracture of both bones of the right leg with resultant shortening of an inch and angulation. After a forty-eight hour interval of skin preparation, a wire was placed through the os calcis and skeletal traction begun. Union was delayed in this instance, there being a fibrous reaction with retarded calcium deposition. The walking caliper was employed for a matter of months and osseous union is apparently complete at this time. (Fig. 5.)

Case 6. Mr. W. L., an electrician, aged 46 years, was struck by a motor car when crossing the street. He sustained a fracture of both bones of the left leg. He was admitted to the Deaconess Hospital on December 12, 1937, with one and one half inches of shortening. He had spent four weeks in another hospital where, under the care of an osteopath, skin traction had been used in futile attempt at adequate reduction. The skin of the affected leg and foot was so traumatized from the adhesive traction bands that a further interval of delay was necessary before adequate sterilization of the tissue was obtained preparatory to institution of skeletal traction. The callus of the malunion was then successfully broken up by manual manipulation under general anesthesia and a Kirschner wire directed through the os calcis. Fortunately, skeletal traction produced satisfactory reduction with full correction of the shortening. Delayed union was again encountered but at this time osseous union has occurred. (Fig. 6.)

What about such fractures when they are not simple but compound?—Debridement and irrigation of the wound is carried out and reduction of the fragments procured as soon as possible. If plaster has been applied the wound can be cared for through a window; if skeletal traction has been carried out, the wound is readily available for irrigations, dressings and any care necessary.

REPORT OF CASES

Case 7. Mr. E. S., a postmaster, aged 64 years, was admitted to the Deaconess Hospital on April 1, 1937, following an automobile accident on a state highway.

On admission the right leg was enclosed in plaster from thigh to toes, having been applied as a first aid measure by a physician near the scene of the accident, and the patient was in profound shock. His status remained critical for several weeks progressing from profound shock to semicoma, to excitation and delirium. When the patient apparently was out of danger, plaster was removed and compound multiple fractures of both bones of right leg were treated with skeletal traction and dressings of the open wound. No gross infection had occurred. Following seven weeks of skeletal traction, sufficient callous fixation was present to allow plaster immobilization. The skin wound healed uneventfully. On September 23, 1937, patient began use of walking caliper. He was last seen about four weeks ago at which time the fracture sites were becoming fairly solid but osseous union was not yet complete. (Fig. 7.)

Case 8. Mr. F. M., a plasterer, aged 27 years, was admitted to St. Louis County Hospital on August 30, 1936, following an automobile accident in which he sustained a compound fracture of both bones of the right leg. He was taken to the operating room and under spinal anesthesia the wound was irrigated with saline and Dakin's solution (1 per cent) for twenty minutes. Dakin's tubes were inserted into the wound and the wound closed with black silk. Skeletal traction in both directions was then inaugurated. In spite of continuous Dakin's solution irrigation, subsequent roentgenograms of the multiple fractures of the tibia and fibula showed an osteomyelitis progressing in the lower third of the tibia. On January 4, 1937, the patient was taken to the operating room where redundant tissue was removed from the site of infection and intervening soft tissue between the bone fragments. Bone ends were cleaned and curetted and the wound was packed with vaseline gauze. A plaster cast was applied. He was discharged on February 1, 1937. On February 22, 1937, he was readmitted for change of plaster cast. Again on March 28, 1937, he was readmitted to the hospital. Roentgenographic examination at this time disclosed callous formation about the fracture sites with a subsidence of the osteomyelitic process. He continues to be treated for the bone infection in the outpatient department. (Fig. 8.)

This type of treatment is certainly not to be recommended.

What are the criteria for good alignment especially if the joints are involved?—Complete ana-

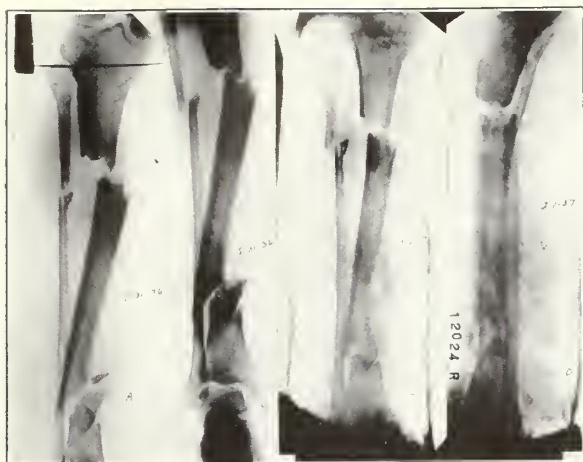


Fig. 8. (Case 8.) This case is included because of its obvious value as an object lesson. A and B. Multiple compound fractures of both bones. For skeletal traction two pins were used, one in the os calcis and the other in the upper end of the tibia. Traction was exerted in opposite directions. C and D. Months later. Osteomyelitis at site of lower fragments. Plaster immobilization. While skeletal traction was indicated, the manner of its use in this instance was ill advised.

tomic reduction, of course, is the ideal. However, slight displacement is not incompatible with good function if the general considerations are cared for; namely, the axes of the main fragments of the tibia must be kept parallel and the astragalotibial joint must lie in its normal horizontal plane. When placed in plaster, the foot must be placed at right angles to the leg in a position of inversion and with some support to the arch. When the knee joint is involved the condyles of the tibia must be so replaced as to restore normal contour to the joint surface thus avoiding a future valgus or varus deformity.

REPORT OF CASES

Case 9. Mrs. P. B., housewife, aged 48 years, was admitted to the Deaconess Hospital on October 17, 1936, following fracture of her right ankle sustained in falling down a hill. The roentgenograms disclosed a fracture of the tibia and fibula at their lower ends with displacement of the foot laterally and posteriorly. A Kirschner wire was immediately inserted through the os calcis and skeletal traction begun. The weights and lateral traction bands were adjusted from time to time until the relation of the malleoli to the joint and the joint mortise were satisfactory. The extremity was placed in plaster on November 13, 1936. Convalescence was of normal duration. (Fig. 9.)

Case 10. Mr. H. C., a fireman, aged 41 years, was thrown from his truck sustaining a compound comminuted fracture of both bones of the right leg at the ankle with outward dislocation of the foot and comminuted fractures of both bones of the left leg at the ankle with inward dislocation of the foot. He was admitted to the St. Louis County Hospital shortly thereafter where the compound fracture was debrided and irrigated with saline and dressed.* Kirschner wires were placed through the os calcis of both feet following reduction of the dislocations and skeletal traction was carried out. After various instances of manipulation and lateral traction band devices, the joint mortises of both ankles were brought into satisfactory position and, following callous



Fig. 9. (Case 9.) A and B. Fracture of both bones with upward posterior and lateral dislocation of the foot. Manual reduction would not have held in plaster boot. Skeletal traction was immediately used and various fragments were manipulated and molded into position during callous formation. C and D. Following skeletal traction.

formation, put in plaster casts. He continues to complain of a painful left ankle although his right is asymptomatic. (Figs. 10 and 11.)

When is open reduction to be considered?—Open reduction must be resorted to in fractures of the shaft when skeletal traction measures cannot ef-

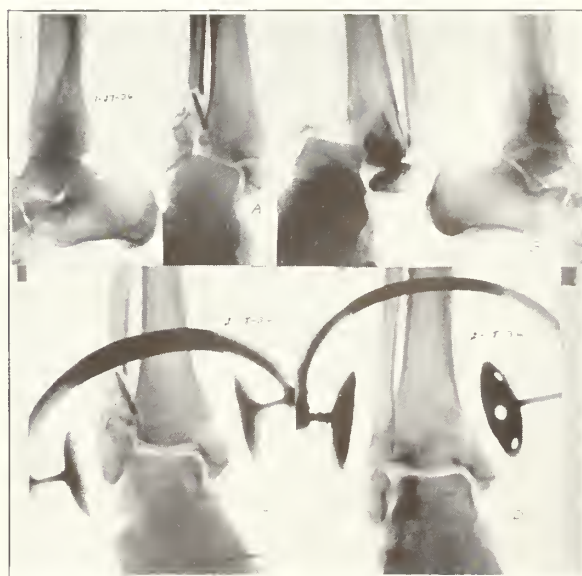


Fig. 10. (Case 10.) A and B. Compound fractures of both bones with dislocation of feet and considerable contamination with cinders, etc. C and D. Replacement of malleoli following skeletal traction and gradual molding of fragments.

*A paper emphasizing details of treatment of compound fractures is to be published in the near future.



Fig. 11. (Case 10.) Months later. Union without infection.

fect satisfactory reduction or maintain it. Metal plates and other means of internal fixation may have to be utilized in these instances. In Pott's or Dupuytren's fractures with involvement of both malleoli, if reposition of the malleoli cannot be effected through manipulation and retained in place, it may be necessary to fix the malleoli in place in order to maintain the joint mortise. Fractures of the condyles of the tibia involving the knee joint also may necessitate open operation and fixation of the fragments in their normal position.

REPORT OF CASE

Case 11. Mr. B. B., a plumber, aged 42 years, sustained a fracture of both bones of his leg. This case is cited merely to point out that while this is an oblique fracture, skeletal traction would have been sufficient to promote union rather than the open operation and plating which were used. The several operations of inserting the plate and later taking it out are examples of unnecessary surgery in treating fractures of this sort. (Fig. 12.)

What time is required for union?—The time required for union depends upon the rapidity of callous formation and this in turn depends upon the several following factors: the extent of damage to the bone; the extent of the vascular disturbance; the amount of motion that has been permitted between the fragments; the amount of displacement of the fragment ends, and the presence or absence of infection. Transverse fractures generally take a longer time to heal. Fractures in the lower third of the leg are slower because of the poor blood supply to this area. In some, union occurs from in six to twelve weeks and in others it may be a mat-

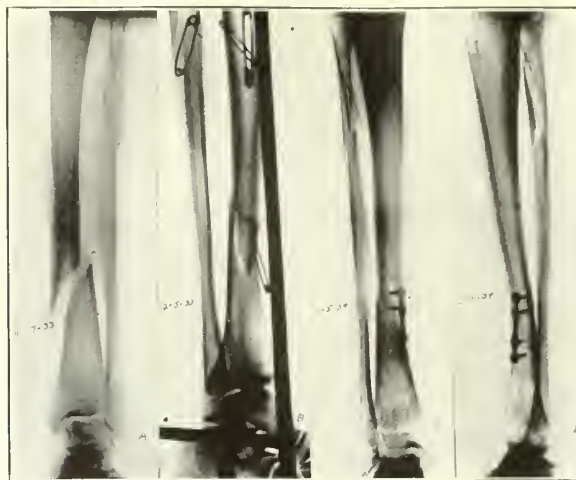


Fig. 12. (Case 11.) Case presented to point out unnecessary surgery. A and B. Skeletal traction was instituted and this plus coaptation splint to bring about lateral alignment would have been entirely sufficient to effect a union. C and D. Plates taken following open reduction and metal plating.

ter of months. It is important to maintain protection for a long time after there is apparently solid union, however. Refracture or the development of an angular deformity or shortening from overriding may recur. After union, walking with crutches while avoiding bearing weight on the affected extremity is allowed for the next three weeks or so. During this time the shoe for the good foot may be elevated. For the following ten weeks or so, the patient is allowed weight-bearing in a walking caliper.

Cases 5, 6 and 7 are instances of delayed union and the factors responsible for it can be gathered from the conditions and circumstances noted in the cases.

What are the complications following weight-bearing if the weight-bearing line has not been adequately restored?—If there has not been adequate restoration of the normal weight-bearing line then the normal muscular balance is destroyed because of the unequal distribution of stress and strain. Muscles become spastic and painful and deformity results. This may express itself as a painful, pronated foot with swelling of the ankle; cramping of the leg muscles; painful knee or hip joint attesting to the development of a traumatic arthritis, and debilitating low back pain because of the disturbed body mechanics and unilateral strain.

Many of these complications may occur in less degree and for a shorter duration in good reduction or good union because no attention may have been paid to the preservation of muscle tonus and joint motion throughout the prolonged period of fixation and nonweight bearing. Therefore massage and active movements should be inaugurated as early as safety warrants and this physiotherapeutic regime should become from then on the daily concern of those following the case.

CONCLUSION

Since fractures are something more than a break in bone, they often become a problem the solution of which may be difficult because when a bone breaks the adjacent physiological structure is involved. The normal mechanical function of the part, temporarily at least, is pulled down. Torn blood vessels rapidly inaugurate swelling. Muscles contract and increase the deformity by increasing the angulation or overriding of the fragments. This in turn may so disturb the adjacent joint surfaces that they no longer assume a normal axis one to the other. Deranged joint surfaces in the lower extremities deserve the utmost concern because of their future role of weight bearing. Bone ends must therefore not only heal together but heal in proper alignment. There must result painless functioning of the joints and equal pull of opposing muscles, otherwise the patient becomes quite as unhappy as though the two fragments had never healed together. The old precept of fracture treatment is one well worth adhering to: Complete restoration of function is more important than complete reduction of a fracture.

418 Beaumont Building.

DISCUSSION

DR. O. P. HAMPTON, St. Louis: It seems to me that Dr. Jostes' excellent presentation of this important subject certainly deserves some discussion. I would like to stress the importance of immediate reduction. We have been using, in those fractures where there is a slight obliquity with a tendency to override, skeletal traction using a wire through the os calcis. Traction is made, the fragments reduced and a plaster cast applied with the knee in flexion incorporating the wire in the cast thereby maintaining traction. This will not work in those cases that are extremely oblique or spiral but it will work in a number of cases, particularly those which heretofore have been adequately reduced but check-up films three or four days later have shown slipping. The economical factor always enters in the care of any fracture and this treatment will allow discharge from the hospital after three or four days instead of keeping the patient in bed in a splint with constant skeletal traction for two or three weeks.

Another factor in the use of skeletal traction combined with plaster fixation is that constant contact between the fragments is allowed as atrophy takes place.

But regardless of the type of treatment immediate reduction is essential. The practice of allowing those cases which enter the hospital around 9 or 10 o'clock in the evening to remain unreduced until the next morning is almost malpractice. When the fragments are not reduced early the muscles set themselves in contraction with resultant overriding. When the fractures are reduced and kept reduced the results are much better.

I believe Dr. Jostes deserves great praise for his excellent presentation of this subject.

We are endowed with an almost infinite number of interests which represent capacity for accomplishment.
—Hygeia.

The first thing to do in the presence of frequent colds is to determine whether there is any physical cause for their occurrence.—Hygeia.

FRACTURES OF THE OS CALCIS

DUNCAN C. McKEEVER, M.D.

KANSAS CITY, MO.

Fractures of the os calcis present an important problem, especially in industrial cases, because of the high percentage of resultant disability even with the most carefully directed treatment. This disability consists primarily of pain on weight bearing and frequently occurs in fractures showing little or no displacement of fragments by roentgen ray. There is a loss of lateral mobility of the foot, particularly eversion, which occurs almost entirely in the subastragaloid joint. Often there is an impingement of the os calcis on the external malleolus due to widening or mushrooming of the os calcis which in turn gives rise to much pain and disability.

Fracture of the os calcis is not difficult to diagnose yet it is frequently overlooked or misdiagnosed as a sprain. It should always be suspected in the presence of any foot disability resulting from a fall in which the patient lands on the feet, even from a relatively insignificant height. Severe bilateral fractures of the os calcis have occurred in falls of only four or five feet. In one case a heavy weight fell on the flexed knee when the foot was on the ground and produced such a fracture. If suspected and properly roentgen rayed, diagnosis of fracture of the os calcis can be made easily. The lateral view may show little if any visible displacement and may not reveal the fracture readily. The most informative view is one taken by placing the roentgen ray plate behind the heel and directing the rays from above and distal to the os calcis at an angle of approximately 45 degrees from the verticle (fig. 1). This view always should be taken of both feet for comparison and it will readily reveal any measurable degree of widening of the os calcis present. If such fractures are overlooked a high degree of disability is almost certain to result and in these cases operative procedures only succeed in reducing the disability to a relative degree and this after a prolonged disability.

Only the relatively insignificant fissure fractures without displacement can be expected to result in satisfactory function without reduction. We are of the opinion that reduction should be carried out at once if possible though satisfactory results can be obtained several days following the injury. It has been our observation that the soft parts swell less and that local reaction and swelling subside more rapidly when the fracture is reduced and immobilized at once than when reduction is delayed.

There are two principles of correction which must be carried out in reduction of fractures of the os calcis. First, the normal angle of relation of the os calcis to the body of the foot must be restored. This is the so-called tuber angle and is about 140 degrees. Second, and of even greater importance, the widening or mushrooming of the os calcis which is respon-

Read at the 81st Annual Session of the Missouri State Medical Association, Jefferson City, May 2-4, 1938.



Fig. 1. Relative position of roentgen ray tube and plate.



Fig. 3. First step in reduction of fracture of os calcis.

sible for such a great part of the disability must be corrected.

There are a number of methods by which these results may be successfully accomplished. Many recognized fracture services have as a result of unfortunate experience adopted a routine primary subastragaloid arthrodesis as the mode of treatment yielding the most satisfactory end results in the largest number of cases. We believe this view is unnecessarily radical.

There are three principal pieces of apparatus required for reduction of fracture of the os calcis, of which the most important is the os calcis clamp for correction of widening of the os calcis. The second is some form of stirrup for counter pressure against the instep. A padded crutch cut off just below the handgrip can be used but a piece of 2 by 4 wood about 15 inches long and rounded at one end with a cross piece on the other end about 6 inches long is satisfactory. The third piece of apparatus necessary is a sound or hook used to pass through the heel just above the os calcis and just anterior to the heel tendon. An ordinary boot hook can be used to good advantage as it permits freedom of the other hand. Such hooks can be purchased for 50 cents a pair. For this purpose the point is sharpened moderately (fig. 2).

The reduction is carried out as follows: Under general anesthesia a small stab wound is made on either side of the heel just above and anterior to the

insertion of the tendo achillis. The tip of the boot hook is passed through anterior to the tendo achillis. An assistant flexes the knee and it is kept flexed throughout reduction and application of the cast. The stirrup is placed against the chest of the operator and the instep of the patient. The right hand grasps the handle of the hook, the left the dorsum of the foot. Strong traction is made downward with the foot in slight talipes equinus. This breaks up impaction and restores the length of the os calcis and its alignment to the foot as a whole carrying the tuber angle to the normal 140 degrees (fig. 3). The fragments will maintain this correction if the knee is kept flexed and the foot in slight equinus so that all tension on the tendo achillis is relieved. The os calcis clamp is then applied with one pressure piece beneath each malleolus (fig. 4). It may be applied more than once if there is marked widening and a larger area is to be laterally compressed than can be covered at one application. This impacts the fragments of the os calcis into a position approximating normal width. The clamp is then removed. The hook is removed and an alcohol dressing is applied to the stab wounds. A flattened part roll of 3 inch bandage is placed just beneath the external malleolus as an added precaution against impingement on the external malleolus (fig. 5). This is incorporated in a padded plaster cast which is applied from the tips of the toes to the upper third of the thigh with the knee in 45 degrees of flexion and

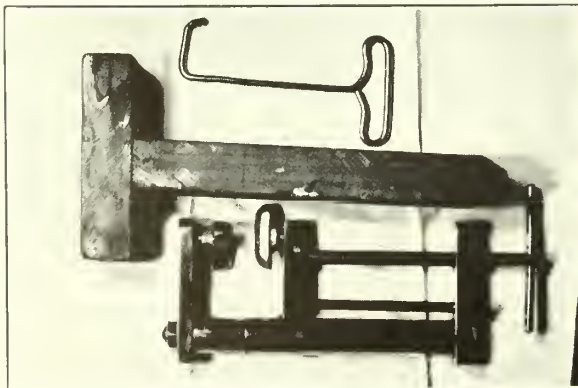


Fig. 2. Apparatus for reduction of fractures of the os calcis.



Fig. 4. Application of os calcis clamp to correct widening of os calcis.



Fig. 5. Position of bandage roll beneath external malleolus.

the foot in slight equinus (fig. 6). Check roentgenograms are taken as previously described.

The cast is cut down below the knee at three weeks. Weight bearing with a walking iron or heel is permitted at from four to five weeks. The cast is removed at six weeks and physiotherapy instituted. Full weight bearing is started at once in a properly balanced shoe. This shoe should have a rigid shank. There should be a $\frac{1}{8}$ inch wedge on the inner side of the heel and preferably a longitudinal and metatarsal arch support should be placed in the shoe. Disability may be expected to terminate in from four to six weeks after removal of the cast if the patient is properly cooperative and the reduction has been satisfactory.

In cases showing extreme comminution or cases of over three weeks standing the only recourse is subastragalus arthrodesis. Though there is actually little permanent disability associated with this operative procedure the period of temporary total disability is several weeks longer.

The method described has yielded completely normal feet in many cases and in no case so treated has subastragaloid arthrodesis later been necessary. This method has the added advantage of permitting the patient to be ambulatory on crutches after only a few days. It avoids prolonged hospitalization necessary if traction pins are used and the danger of



Fig. 6. Complete cast to maintain reduction of fracture of the os calcis.

infection which occurs occasionally when they are used. Only one tragedy associated with the use of skeletal traction is necessary to instill in the user a lasting respect for its dangers.

In closing let me emphasize one of the points made early in this paper. Suspect fracture of the os calcis in all foot injuries resulting from falls. To treat them is not difficult. To overlook one is unfortunate.

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ALLERGY IN CHILDHOOD

Few, if any, new eczemas start after the sixth year of life, while asthma may have its onset at any time during childhood, generally after the first year, Bret Ratner, M.D., New York, points out in *The Journal of the American Medical Association* for December 24.

Hay fever is different; an occasional case may occur in early childhood, but it is only after the sixth year that the incidence of fixed hay fever becomes notable. The majority of hay fever sufferers commence their symptoms after puberty, the second decade being the most usual. Urticarias (hives) appear to jog along sporadically throughout childhood.

The majority of children (63.2 per cent of 250) suffer from asthma, as do the majority of adults (53 per cent of 315). Among the children, however, only 39.2 per cent of those with asthma have this condition alone, whereas 24 per cent have it in combination with other allergies—in the majority of instances with eczema.

Pure asthma remains the major form of allergy both in childhood and in the adult period. In those cases which manifest more than one type of allergy, asthma is generally present, showing that in the human subject the lung structure seems to be the most reactive organ.

Among the children with eczema, 40 per cent react to foods alone and 5.7 per cent to skin irritants alone, the remainder react to a combination of foods, inhalants, contactants and pollens.

With asthma, 11.5 per cent react to foods alone and a higher percentage (22.9) to inhalants. With the eczema-asthma group, 2.8 per cent react to foods alone, 5.6 per cent to inhalants alone and the overwhelming majority to various combinations.

Among patients with hay fever 93.3 per cent react to pollens alone, and 6.7 per cent to pollens and inhalants, which suggests that certain patients with hay fever, even in childhood, will not do well if tested and treated for pollen sensitivities alone.

Infantile eczema must be treated locally, but unless the underlying reasons for its existence are determined and corrected, recurrences and increases in its severity will follow. Asthma also may develop.

The onset of allergy can in a measure be prevented through control of the diet of the pregnant woman and of the young infant.

Its progress can be interrupted by early diagnosis of the interrelated conditions and reduction of contact with inciting substances.

Of Alaska's 14,000 Eskimos, at least 60 per cent have tuberculosis in either the incipient or the active stage, and in some sections of the territory the percentage is even greater.—*Hygeia*.

SYMPOSIUM ON HIGHWAY ACCIDENTS

EARLY MANAGEMENT OF FRACTURES

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It is not intended that this paper should cover emergency treatment of fractures nor the detailed treatment of any particular type of fracture. As the curves in the roads in the greater part of Missouri are so acute and such a high percentage of drivers do not have enough consideration for other drivers to dim their headlights when meeting a car, fractures have become very prevalent and the types of fractures have become much diversified. Because the future usefulness of the patient depends to such a great extent on the early permanent dressing of fractures I feel a consideration of early management or principles of fractures is apropos.

After emergency indications have been met by the physician into whose care the patient falls the question arises as to when, where and how to set the fracture and how best to retain it after reduction. The first thing to be done in most cases is to obtain satisfactory roentgenograms. After these have been studied the next most important thing is to think the case over, taking into consideration such things as the patient's age and social environment, and especially evaluating the bearing of this injury on his or her future usefulness.

When? Compound fractures, dislocations and fractures adjacent to a joint with marked deformity should have adequate care for the permanent dressing within the first twenty-four hours, and the sooner the better, other things being considered. A compound fracture should have adequate treatment before infection has been established, first in an effort to avoid infection and second to avoid activating an infection by manipulating or operating on the case at a later date when the infection would have been of trivial importance had the case been treated properly within the first twenty-four hours. A dislocation should have early reduction to avoid pressure on the nerves and vessels, extreme swelling and, above all, Volkmann's ischemic paralysis, and also, for the very good reason that within a few weeks, sometimes as early as two weeks, dislocations not reduced become impossible to reduce by the closed method and even by the open method without mutilating the joint. The same reasoning applies to fractures adjacent to the joint with marked displacement. This is especially true in fracture dislocations of the spine when the cord is involved or even threatened. Simple fractures of the long bones usually can be handled as well any time in the first few days if they have adequate emergency treatment.

Where? Injuries involving the spine always should have proper first aid, which is about equivalent

to a permanent dressing in efficiency, as soon as possible after the injury and before the patient has been subjected to further trauma by unnecessary handling. Most dislocations, if the patient has to be transported any great distance, should be reduced even in the absence of roentgenograms because of the damage to soft tissues, especially the nerves and vessels, if the bones remain dislocated for a time. However, most fracture cases should be taken to hospitals that possess proper facilities for handling fractures and giving anesthetics and enough help to carry through after the fracture is reduced.

How should fractures be set? How accurately should they be reduced and how best retained? As mentioned before, first of all one should evaluate the importance of the fracture or dislocation as it pertains to the future usefulness of the patient. One who does not do fracture work every day so as to be thoroughly familiar with this phase of injury, should not start his work until he has made up his mind how accurately the fracture in hand must be reduced to render the part involved useful for the average life expectancy; whether if not reduced accurately it will become more useful and will straighten as time goes on and the part is used more, or whether it will become more malaligned and disabling with use and time. One should study roentgenograms, consider thoroughly the anatomy that may have a bearing on the reduction, which may be damaged in the reduction and that later may be involved as a result of faulty reduction, must have an accurately planned dressing for retaining parts in improved position after reduction and plan for handling extremities during application of the dressing. Few fractures can be handled and few should be handled without some form of anesthesia and the anesthetic that is safest and relaxes the patient best is the one of choice. We have found ether most satisfactory, nitrous oxide not at all satisfactory for relaxing the patient, ethylene and cyclopropane fairly satisfactory. Some physicians use local more than other anesthetics and some prefer spinal anesthesia.

As to the actual reduction, one needs little apparatus and certainly no power machinery, the hands properly directed being by all odds safer and for details more efficient. Some doctors spend a great deal for fluoroscopic apparatus, but since practically all fractures must be reduced in a certain way if they can be reduced at all, I feel the usefulness of the fluoroscope is very limited in bone work. It is not sufficiently accurate for diagnosis

in bone work and leaves no record as a picture does, and a follow-up picture as a record later may prove useful under certain conditions.

Few fractures are impacted to any great extent except in children and some fractures of the neck of the femur, and many fractures that actually need reduction are allowed to remain unreduced under the erroneous impression that they are impacted when they are not. Impacted fractures with deformity require the same reduction that others require with the exception of impacted fractures of the neck of the femur. Here, when the patient is in the older age group, fractures in good position and with moderate deformity should not be broken up because most such fractures heal, whereas if broken up there will be many failures of union.

When one has decided to reduce fractures of various bones he first should decide how accurately the particular fracture should be reduced to obtain a good functional and cosmetic result. In dislocations, joint fractures with displacement and fractures adjacent to the joint, the reduction must be rather accurate because as time goes on the future usefulness of the extremity or spine depends to so great an extent on the mechanics of the joint involved and other joints of the extremity or spine becoming involved secondarily. It is not at all uncommon to find painful knees and occasionally painful hips as a result of improperly reduced ankles, and likewise painful ankles as a result of badly handled injuries of the knees. The same is true of spine injuries.

In dealing with the long bones not adjacent to the joint, the length of the bone and general direction are the points of importance to govern one's handling of the case. Of course, if the ends of long bones are not hooked on each other or entangled they have a greater tendency to become shorter with time if they do not unite reasonably early. But a fracture of a long bone with one fourth of the ends in apposition will unite about as early as one that is 90 per cent in apposition and give just as good a result in the long run. On the average they will unite earlier than those 100 per cent in apposition as a result of open reduction. In fractures of the lower third of the tibia one should make a special effort to get fairly accurate apposition in dealing with transverse fractures because of the effect on the circulation and likelihood of future ulceration of the soft parts.

In reducing indirect violence fractures probably the simplest general rule is to reverse the force that caused the fracture and displacement. In doing this one must give due consideration to the soft tissues, especially those intact which include in some cases the periosteum, in many the ligaments, and in practically all cases the fascia and muscles or tendons.

For instance, in Colles' fracture apparently impacted if after the patient is anesthetized one gently hyperextends the wrist relaxing the soft tissues on the dorsum of the wrist, he will find the fracture is rarely impacted and the fractured ends almost

always can be accurately reduced by pressure with the thumb while the hand and wrist are in hyperextension and the fragment held there, while the hand and wrist are straightened or partially flexed with the other hand. This should be done with the elbow flexed to obtain further relaxation. This is also true in fractures through the condyle of the humerus so common in children, these fractures being caused by force transmitted through the forearm while the arm is hyperextended. If one hyperextends the arm moderately at the elbow to relax the periosteum and triceps tendon on the dorsum of the arm, apposition usually is obtained easily the same as in a Colles' fracture and so held while the forearm and distal fragment of the humerus are flexed by the other hand. This principle should be applied to most fractures, certainly to fractures adjacent to joints and most fractures of long bones. One frequently may be misled by the story of the patient as to how the fracture occurred but usually one can tell the nature of the violence or at least the direction of the force by viewing roentgenograms, especially in fractures involving a joint. This certainly usually can be done in injuries involving the knee and ankle. Many patients have been ruined so far as future use of the ankle is concerned by the doctor assuming that because the injury involved the malleoli it was a Pott's fracture and treating it as such. One almost always, by viewing roentgenograms, can determine the direction of the force causing the injury and act accordingly in reducing the fracture or fracture dislocation and maintaining the reduction. For instance, in an abduction or Pott's type of fracture, as a rule the entire medial malleolus is not broken off and sometimes only the tip is broken or only the ligament torn because it is broken on the medial side by avulsion. On the other hand, the lateral malleolus is broken obliquely above the articular surface of the tibia because it is broken by compression. The medial malleolus being in front of the lateral malleolus the fracture is naturally an eversion injury as well as abduction, consequently the capsule usually is torn anteriorly. Therefore in handling such a fracture one need have no fear of having too much adduction and dorsiflexion in reducing the injury or maintaining the reduction. On the other hand, in handling an adduction fracture the lateral malleolus is broken by avulsion and therefore is broken as a rule at the level of the articular surface of the tibia. The medial malleolus is broken by compression and therefore usually is broken above the articular surface of the tibia. In this case there is nothing to push the astragalus against on either side and the foot must be treated in a neutral position from side to side, the foot dorsiflexed at a right angle to the leg, and the operator must depend on molding the malleoli against the astragalus with both hands to get a fairly normal mortise instead of pressing against the lateral malleolus and lateral surface of the foot as in a Pott's fracture. Likewise, if the posterior articular sur-

face of the tibia is broken off and displaced upward, the posterior capsule usually is intact and aids in correction of the fragment when the foot is dorsiflexed. On the other hand, if the lower end of the tibia is broken obliquely above the joint, the front of the foot must be lowered in order to relax the tendo achillis and avoid overriding. These types are mentioned as illustrations, but the principle can be used in fractures in most parts of the body and every fracture should be so analyzed before an attempt is made to reduce it and apply a permanent dressing.

When is open reduction justified? As mentioned, dislocations must be reduced early and if treated early practically always can be handled satisfactorily by the closed method. Fracture dislocations and fractures adjacent to joints should be reduced early and if this is done practically always can be reduced by the closed method; but they must be reduced by some means if we hope to get a useful member. Such cases not reduced immediately sometimes require open reduction and then frequently result in unsatisfactory joints. Fractures of the shaft of the bones rarely need open reduction if we take advantage of the muscle pull and gravity. The femur seems to be the bone most frequently selected for open reduction and these open reductions if infected not infrequently render the patient an invalid for years and sometimes for life, and occasionally result in amputations. In a closed fracture of the femur, if we flex the thigh on the pelvis and the leg on the thigh, a little traction usually will give a satisfactory result. This is especially true in fractures of the lower end of the femur where the gastrocnemius is the principal offender, throwing the upper end of the lower fragment back into the popliteal space; consequently flexing the knee and relaxing the gastrocnemius is the only reasonable way to overcome this deformity. In fractures higher in the shaft flexing the knee and the hip aid in the same way by relaxing the hamstrings and thus rendering less traction necessary. If this principle is carried out, satisfactory results usually can be obtained without resorting to open surgery. If the shortening can be brought down to about one half inch or less and the general alignment is taken care of, the results are good. It requires less time for healing than by the open method and the patient is not subjected to the great danger of open operation. If one is not satisfied with the results he is getting by adhesive plaster traction or traction in a cast, then skeletal traction is preferable to open reduction, certainly in comminuted fractures. Traction also works admirably in the intertrochanteric region. With intracapsular fracture of the neck of the femur we are again dealing with a joint fracture and in this particular fracture I feel the final solution has not arrived. For the present the Whitman abduction method brings out the essential principle; namely, that it should be accurately reduced and held in close apposition. The flange nail is used a great deal and where both fragments are long

enough to lend the nail holding qualities it frequently results in a union. In cases fairly favorable otherwise, the autogenous bone peg will give the best percentage of bony unions. The neck of the femur is a bone with poor circulation, the callus-forming elements are thinned or scattered by the joint fluid and, more than other joint fractures, must be in accurate apposition, and still better, impacted, if we hope to get a union.

When dealing with two parallel bones, as in the leg or forearm, the problem is altered somewhat. In the leg, if the tibia, being the supporting bone, can be reduced satisfactorily the fibula to a great extent can be disregarded in the shaft (not so at the ankle). In the forearm, except in the upper end of the arm, if the radius can be reduced or the ends entangled somewhat, then one certainly is not justified in open reduction. In the upper part of the forearm fractures of the ulna deserve more consideration.

In dealing with indirect fractures of bones with poor circulation and little ability to form callus such as the patella and olecranon the position must be good if we expect a bony union, although a fibrous union frequently suffices in these cases.

If the above principles are taken into consideration before we try to apply a permanent dressing we will have few open reductions necessary.

In maintaining fracture reductions it is better to use the dressing with which the attending doctor is familiar. Some patented splints are good where they happen to fit but if a man does much fracture work he must have a great many splints in stock to enable him to find suitable ones for the different types of fractures in various sized individuals. Where one is using traction, as in the lower extremity, frequently these splints are very useful. Every community where much fracture work is done certainly should have a supply of plaster of paris because it will fit any fracture, whether used as a circular bandage or as plaster splints. In fractures of the forearm or elbow, traction seldom is indicated and as a rule is unsatisfactory and, if the fracture is fairly well reduced and the extremity immobilized with plaster of paris, traction is rarely needed. Likewise in fractures of the shaft of the humerus one must flex the elbow so as to get the proper muscle balance. Certainly one thing which is absolutely unnecessary in fractures of the shaft of the humerus is elevation of the arm from the side with an airplane splint or similar apparatus which throws the muscles in a strain, particularly the coracobrachialis and the pectoral muscles. If a dressing of average weight is applied and the arm allowed to hang by the side, the weight of the dressing and the arm practically always will give all the traction necessary and the patient can be up and around and better off than if he were in bed or hospitalized. Sometimes the bed must be propped up somewhat at night to continue this gravity. Certainly it is most unusual for a fracture of the humerus to require an open reduction or skeletal traction if one takes

advantage of the weight of the arm and the average dressing. Exceptions are compound fractures and fractures involving the radial nerve; but simple fractures and certainly comminuted fractures are treated better by the closed method and plaster of paris is the dressing of choice. In fractures of the metacarpals and phalanges of the hand, traction is indicated frequently but not always, because one frequently can adjust such fractures by using the proper amount of flexion or extension, taking into consideration the attachment of the tendons. Traction is indicated in a certain percentage of these fractures and when it is one can use either adhesive plaster or skeletal traction, according to the method with which the physician is familiar. In treating in any way, he certainly must take flexion and extension into consideration. In the treatment of fractures of the lower extremity traction is indicated more frequently and as a rule it is indicated in the femur. Of course, if one takes muscle pull into consideration, a great percentage of femur fractures can be treated with slight traction in a plaster cast by flexion of the hip and flexion of the knee. In these instances an average cast will have a tendency to crawl up on the patient and cause shortening, so a certain amount of weight has to be tied on to the cast to keep it down and in this way a certain amount of traction can be exerted on the femur where the knee is flexed as much as 35 degrees or more. The temptation to do open reductions in fractures of the femur is great but certainly the average fracture of the femur will get well in less time if it is treated by the closed method. One certainly had better accept as much as one half inch shortening rather than take the risk of an open reduction. The open reduction is nice when it is a success but does not get well as fast as an average case not operated on, and one infection disabling a patient for from a few years to life will more than offset a few legs with a slight shortening. If one cannot control a fracture of the femur otherwise, skeletal traction is decidedly preferable to open reduction and much less hazardous. Transverse fractures of the leg usually can be reduced by the closed method, but in the lower third they should be reduced fairly accurately because they interfere so much with the circulation as time goes on. Most of these fractures can be reduced and treated by the closed method if one uses plantar flexion of the foot and flexes the knee so as to relax the gastrocnemius. Needless to say, both the knee and the ankle must be immobilized in the average case. In all these fractures of the long bones not adjacent to the joint, the apposition does not have to be 100 per cent. The length of the bone and the general direction are the main considerations. On the other hand, fractures adjacent to the joint or fracture dislocations must be reduced accurately and plaster is about the only practical means of maintaining them. I do not mean to say that there are not some fractures that require open reductions, particularly

those of the lateral condyle of the humerus and next in frequency the patella, but the indication for open reductions in fractures of the long bones is decidedly the exception. To maintain any fracture reduction, whether one uses plaster or other means, he must necessarily flex the extremity enough to meet the indications, depending on the location of the fracture, and usually must immobilize the joint both proximal and distal to the fracture.

In dealing with fractures of the spine, either a Bradford frame or a plaster cast will prove adequate if properly used. In treating fractures of the spine or neck, the same as in reducing them, certainly one must take into consideration the nature of the violence in the absence of adequate roentgenograms. With few exceptions they are buckling or jackknife fractures and require hyperextension. Of course, when one is hit in the face or forehead, he frequently sustains a reverse fracture and the opposite means of reduction and retention are indicated; but in the average jackknife fracture hyperextension at the site of the fracture is indicated until the fracture is thoroughly reduced. Practically all dislocations of the spine are fracture dislocations and practically all fractures of the spine are fractures with a tendency to dislocation and consequently most of them can be reduced by reversing the force of the injury, and this must be kept in mind in maintaining them.

Practically all compound fractures require drainage or debridement or both. While one is doing this he usually can fix the fracture by internal methods, either by a bone splinter or some other material such as an ivory peg or catgut, if the proper dressing is applied. In this way, it is not necessary to disturb this potential infection for some time in most cases.

PROGNOSIS

The question with which every doctor is confronted when he attempts to put a permanent dressing on a fracture, frequently before the dressing is dry, is, "How long is this going to require?" This is certainly a question that no one can answer accurately, but the people are entitled to an opinion. While there are some individuals who do not grow bone readily, they are not numerous and I feel that the prognosis depends to a great extent on the severity of the fracture the same as it would in a sickness. Subperiosteal fractures heal readily, mild fractures heal readily, severe fractures with great displacement heal slowly and compound fractures heal more slowly, on an average. Some of these fractures with severe displacement or compound fractures where the soft tissues do not hold the bone-forming elements in a comparatively small space frequently do not unite until they are later operated on or retraumatized in some way.

In conclusion, let me emphasize the importance, first, of checking all fractures with displacement by means of a roentgenogram soon after the permanent dressing has been applied, certainly within the

first two or three days, to see if reduction has been maintained by the dressing; second, do not try to correct deformities in subcutaneous bones by pressure from the dressing because the soft tissues slough; third, and most important, all fractures, but

particularly those with a circular dressing, should be inspected occasionally the first two or three days in an effort to check any interference with the circulation before it is too late.

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VISION AND ITS RELATION TO AUTOMOBILE ACCIDENTS

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The importance of sharp visual acuity for automobile drivers cannot be stressed too greatly in this age of high speed automobile transportation. Vision is of course the basic sensation which makes driving possible. The consideration of a driver's vision must be made not only upon his central visual acuity under conditions of daylight illumination, but also his peripheral visual field, his dark adaptation, his reaction to glare, his binocular vision for proper judgment of distance and his color perception. All these factors may involve not the health status of the eyes alone but the general physical health of the individual.

The central visual acuity of persons as tested by Snellen, or other standard charts, is, in healthy eyes, dependent upon the developmental shape of the eyes which produces either emmetropia or one of the abnormal states of hyperopia, myopia, astigmatism or a combination of either of the former with the latter of these abnormalities. All of these abnormal refractive states should be corrected by proper lenses to enable the driver to see clearly all objects in his path. Whenever these refractive errors are of considerable amount the correcting lenses should be worn by the driver all the time he is behind the wheel.

Though many of our states require drivers' licenses, only about twenty states in any way attempt to check vision before a license is issued to the driver. Even these states have no uniformity of visual standards on which issuance of a license is based. This lack of uniformity is probably due to a lack of understanding of the important part vision plays in safe driving. Our own state makes no attempt whatever to check vision before issuing a license.

In 1937 a Special Committee of the Section on Ophthalmology of the American Medical Association, in existence since 1925, reported on visual standards for licensing automobile drivers, recommending the acceptance of the following plan in the examination of prospective drivers:

"1. Visual Tests and Standards.

"(a) To those authorized to conduct the visual examination, instructions shall be given in the proper use, purpose and manner of recording essential tests; for example, the Snellen test card for determining visual acuity, Ishihara book or colored disks for detecting color blindness, simple methods of detecting gross defects in visual field and cover

tests to determine binocular single vision or the more conspicuous muscle abnormalities.

"(b) When applicants are discovered to have defects of vision which fall below the standards set for unlimited license, such applicants shall be referred to an eye physician for correction of any possible defects. (The major portion of such defects are correctable.)

"(c) The eye physician shall furnish the applicant or bureau with a written statement of the best results obtained by correction, of any defects uncorrectable and a recommendation on the fitness or unfitness of the applicant.

"2. Minimum Visual Standards for Licensure: For an unlimited license, provided that physical, mental and aptitude tests are satisfactory, an applicant shall meet the following minimum visual standards:

"(a) Visual acuity with or without glasses of 20/40 Snellen in one eye and 20/100 Snellen in the other.

"(b) A field of vision of not less than 45 degrees to both sides laterally from the point of fixation.

"(c) Binocular single vision.

"(d) Ability to distinguish red, green and yellow. Glasses, when required, must be worn while driving and persons employed in public transportation shall carry an extra pair.

"3. Visual Standards for Limited License: A limited or restricted license may be issued to applicants who are unable to meet the visual standards set for unlimited license. The minimum requirements for this shall be:

"(a) Visual acuity shall be not less than 20/65 Snellen in the better eye. (The one-eyed, the aphacic and the color blind are not disqualified.)

"(b) Field of vision shall be not less than 125 degrees horizontally in one eye.

"(c) Diplopia shall not be present.

"(d) Other personal qualities which may compensate for minor defects of vision and which are necessary for efficient operation of a motor vehicle should rate high for those to whom a limited license is issued. For example, experience, nervous stability, coordination of eye, mind and muscle and aptitude must be fully adequate to meet the practical road tests."

In many of its phases the recommendations, though quite advisable, have been found too expensive or too complicated in their application, and unfortunately this lack of application has resulted

in many cases in the issuance of licenses to persons incapable of safely operating motor vehicles.

The peripheral vision (field of vision) of healthy eyes permits the observation of approaching objects 90 degrees to the lateral side and 60 degrees to the nasal side with either eye separately; thus persons with two good eyes are able to see toward either side at right angles to the line of fixating vision. This is of the greatest importance to drivers in judging the position of their machines with relation to other moving traffic and traffic hazards, as approaching cars, pedestrians, curbs, traffic lights, highway edges and obstructions.

Approximately 40 per cent of all drivers have some defect of one eye or both which involves loss of the visual field, including about 1 per cent totally blind in one eye. Among the causes of one blind eye are cataract, traumatism, glaucoma, corneal opacities, retinitis pigmentosa and retinitis and chorioiditis of various etiology. Unfortunately there is no legal restriction placed on persons so afflicted with regard to limitation of their driving.

It must be remembered that somewhat different hazards arise for persons blind in one eye depending upon whether the right or the left eye is involved in the loss of the visual field since drivers depend upon the field of the right eye mostly for visualizing objects to the right and the field of the left eye for those to the left, and distinctly different reactions on the part of the drivers must be anticipated. These hazards have been well summarized by H. R. DeSilva, et al., in a report published in the *Sight-Saving Review* under the title, "One-Eyed Drivers" as follows:

"Left-eyed persons with a deficient or blind right eye have difficulty: (1) in perceiving pedestrians stepping off the sidewalk or walking along the roadway either by day or night; (2) in viewing the road when making a right turn; (3) in perceiving cars approaching from the right of intersections; (4) in passing other cars (apt to cut in too soon or clip rear bumper in cutting out); (5) in perceiving road signs and traffic lights; (6) in backing out from angle parking; (7) in perceiving cars parked at an angle backing out, and (8) in keeping on the right side of the road (on account of inability to see the edge of the road easily).

"Right-eyed persons with deficient or blind left eye have difficulty: (1) in perceiving pedestrians on account of losing them in the blind spot; (2) in viewing road when making a left turn; (3) in perceiving cars approaching from the left at intersections; (4) in avoiding oncoming cars (since they guide by the right edge of the road); (5) in perceiving road signs on account of losing them in the blind spot; (6) in perceiving jaywalkers in the middle of the road, and (7) in watching traffic in rear view mirror when located on side, as in a truck."

Statistics show us that between 50 and 60 per cent of automobile accidents occur after sunlight has ceased to give adequate illumination of the streets and highways, and also that of these accidents ap-

proximately 75 per cent are stated to have been caused by glare of oncoming headlights.

These statistics force us to consider carefully the health of drivers' eyes with relation to night blindness (exclusive of the night blindness due to the congenital disease, retinitis pigmentosa), which is often a manifestation of vitamin A deficiency. Also these statistics demand consideration of automobile headlights, regulations for dimming or tilting headlights, highway illumination and the possible use of polarizing lenses to eliminate glare.

A vitamin A deficiency induces a hypersensitivity of an individual's eyes to glare since the visual purple in the retina, on which vision is dependent, is rapidly destroyed by light, and in the regeneration of visual purple, an adequate supply of vitamin A is necessary for rapid and complete restoration.

Tests have revealed that about 15 per cent of men and women show a night blindness defect of varying degrees, some being unable to make any visual adjustment to diminished illumination. Rapid cure of night blindness defects can be effected, in many cases, by supplying adequate amounts of vitamin A in the diet by means of butter, cream, cod liver oil and other fish oils.

It is quite evident from this data that proper examination for licensure of drivers should include medical examination of the applicants relative to dark adaptation in accord with suggestions made by the Committee on Visual Standards of the American Medical Association.

Engineers are constantly attempting to produce headlights for automobiles which give a maximum of illumination with a minimum of glare. They have introduced tilt ray lamps which surpass the antiquated dimming which merely reduced all illumination by means of electrical resistance coils. The best modern lamps produce excellent illumination of roadside and adjacent highway, even when tilted, without projection of blinding glaring light into the eyes of approaching drivers. The fault lies not with the equipment so much as with the lack of proper use of it by the individual drivers, many of whom still seem to be seriously wanting in common courtesy of the highway and to be in total ignorance of the hazards to which they expose themselves and others. The problem of control should be met by stringent statutes and more comprehensive education of drivers.

Fixed highway lighting by means of overhead illumination with special sodium vapor lights, though probably the most desirable light, has so far been attempted only on a relatively small scale because of the almost prohibitive cost of installation and maintenance over long mileage. It has been introduced on limited sections of heavily traveled highways where the accident rate at night had been quite high, and there has been a sharp drop in the night accident rate; for example, in Detroit (where such illumination is extensive) the ratio of night accidents to day accidents has dropped from 7 to 1 down to $1\frac{1}{4}$ to 1.

Probably the greatest advantages of fixed highway lighting over automobile headlights are the reduction to a minimum of glare and production of great road surface brightness which permits visualizing all objects in silhouette, thus eliminating the ever present variance of road surface illumination by standard automobile lights.

One phase of lighting which appears seldom to be considered properly is proper contrast between traffic signal light illumination and the adjacent background. At present many of our most important and dangerous intersections are so surrounded by a myriad of red, green, blue and yellow Neon advertising signs which so destroys the contrast between the lights on traffic signals and the adjacent surroundings as to render the signal lights almost indistinguishable.

Sharp visual acuity is dependent not only upon the physical and refractive states of the eyes but also on the clarity of the media through which objects are observed and also upon the contrast between point illumination and the surrounding diffused illumination.

The field of polarized light has been explored widely by lighting engineers in the last few years in the hope of developing some practical means of automobile illumination based on this principle. The ideal highway illumination can definitely be based on polarizing lenses placed in the headlights of all automobiles at a definite angle, which must be constant, and polarizing glass in the windshields of automobiles set at right angles to the polarizing axis of the lenses in the headlights. The claim has been made that the expense of installation is prohibitive, however, it is my firm belief that regardless of expense universal installation would pay dividends in safety just as has the almost universal installation of safety glass. To date, however, the only practical application has come in the form of polarizing glasses which effect only some of the reflected light and do not entirely prevent the occurrence of glare as would the universal installation in headlight lenses and windshields.

Binocular single vision and depth perception is

another most important possession of the driver, since by this means alone can the driver accurately judge distances between cars and other hazards and judge the speed of approaching cars. This function of course can be possessed only by drivers having two healthy eyes and proper muscle balance. The mere lack of binocular vision should not be cause for rejection to a person of a limited license, but uncorrected diplopia which may occur where binocular vision does not exist, should certainly be cause for rejection.

Proper color perception, though important, is probably one of the lesser factors in the cause of automobile accidents, both because of the small percentage of drivers afflicted with faulty color vision (and these persons usually are conscious of their limitations with regard to driving), and because there has been a steadily increasing tendency to place the appropriate words on traffic lights in addition to the regulation use of colored lenses as formerly were used alone. However, as has been previously stated in the report of the Committee on Visual Standards of the American Medical Association, all drivers granted an unlimited license should have accurate color vision for green, red and yellow as measured by any of the standard color vision tests. Faulty color vision alone should not be cause for complete rejection for licensure.

In conclusion I would like once more to stress two points which I feel are the basic factors in the relation of vision to automobile accidents: first, the introduction of legislation which will assure proper and complete examination for visual defects and health defects of all applicants for automobile licenses in accord with the recommendations of the American Medical Association, these examinations preferably to be conducted under medical supervision or, failing this acme, by thoroughly trained technicians; second, more comprehensive education of drivers should be undertaken with the view to instruction of drivers with visual defects in the best manner of surmounting their limitations, and instruction of all drivers in highway rules and courtesy.

AMERICAN RED CROSS HIGHWAY EMERGENCY FIRST AID STATION PROGRAM

A. W. CANTRELL

ST. LOUIS

Last year 1,399,500 persons suffered injury in automobile accidents. Of these, 39,500 died and 110,000 were permanently disabled. Appalling as these figures are they indicate that the casualty toll would have been greater had it not been for certain small white roadside signs which have appeared in constantly increasing numbers along highways during the last several years. The signs read "Red Cross

Highway Emergency First Aid." Wherever they appear there is a Red Cross station fully equipped and manned by two or more volunteers who are trained in first aid and are ready at all times to give instant help when highway accidents happen in their vicinity.

Reports are received daily by the national headquarters of the Red Cross from chapters which supervise the 2600 stations now established throughout the country. They tell of lives saved and serious

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injuries cared for by highway first aid volunteers who act to fill the precious time until accident victims can be placed in the care of a physician.

There are now sixty-six Red Cross Emergency Highway First Aid Stations established along main roads in Missouri. Complete reports available from twenty-eight of these stations show that 301 persons involved in 285 highway accidents have received treatment since the first unit was established in April, 1936, in the Missouri Highway Division state headquarters near St. Joseph. Injuries cared for include those which may befall a highway accident victim, from slight cuts and abrasions to serious fractures and arterial bleeding. Divided into four general classifications these reports showed that seventy-one highway accident victims were treated for cuts in all degrees of severity, twenty-two required care for fractures, nineteen for burns and 207 cases were classified as miscellaneous.

Since these reports represent less than half the Red Cross first aid stations in Missouri it is expected that statistics, when completed for all sixty-six stations in the state for this period, will more than double these figures. A further indication of the service being rendered may be gained from a more complete summary of seven stations established in the Kansas City area. Since authorization, attendants at these stations have aided 119 persons who were injured in 114 highway accidents.

The Red Cross Highway First Aid program became a national movement in the fall of 1935 as that organization's answer to the mounting traffic accident toll which had assumed proportions of the nation's greatest annual disaster. Inaugurated by the late Admiral Cary T. Grayson, then national chairman of the American Red Cross, the program was designed to become effective immediately. Admiral Grayson realized that many hundreds of thousands of persons would suffer and die needlessly before safety educational programs could appreciably reduce the highway accident toll. A physician himself, he launched the movement with the essentials which every physician recognizes as necessary in dealing directly to prevent death and alleviate suffering in such accidents—to provide trained personnel as near as possible to the scenes of highway crashes who know how to treat shock, splint fractures, stop arterial bleeding and use other first aid measures until the patient can be placed in the care of a physician.

Training personnel for stations was no new program for the Red Cross which, since 1910, has qualified 1,725,406 men and women in first aid. Classes organized by Red Cross chapters to train highway first aid station attendants were merely an extension of the existing national first aid program. Courses were given not only to the two or more prospective attendants required for each station, but also to any other persons in the vicinity interested in learning first aid. The result has been that many of the stations have come to be regarded as community enterprises with from twenty to thirty

persons in the same neighborhood trained to help in cases of extreme emergency.

In Missouri this last year, 8565 persons received first aid training from 319 accredited Red Cross instructors, of whom ninety were physicians, working through Red Cross chapters. Of the number trained, 5763 men and women were awarded standard certificates after twenty hours' instruction, 484 received advanced certificates after an additional ten hours' instruction, 1554 passed the fifteen-hour junior course open to youths from 12 to 16 years, 373 special certificates were awarded and 391 passed joint courses. Highway first aid station attendants are required to complete successfully the standard course of twenty hours before the station is authorized.

Training of personnel, however, is not the only requirement for highway emergency first aid stations before they are given authorization to operate as such by the Red Cross national organization. Located in stores, filling stations, tourist camps, fire and police substations and other roadside establishments, the stations first must be satisfactory as to permanency, type of business and fitness of personnel. Each station is required to keep an up-to-date directory of all available physicians and ambulances in its vicinity. Other necessary equipment includes a twenty-four unit Red Cross first aid kit, a half-ring splint for fractures, three highway station signs, wooden splints, blankets and a stretcher. This equipment is furnished by the local chapter.

Before a station is opened the cooperation of local medical authorities is obtained. The first aid service rendered by trained attendants is meant in no sense to take the place of medical care. It is a volunteer service rendered as neighbor to neighbor in an emergency, and particularly for the victims of highway accidents. In every instance the person suffering an injury is advised to obtain medical attention. Station attendants are not permitted to give second treatments, and all such requests are referred to a medical doctor. No recompense may be received by any one giving first aid, nor may donations be received in this connection at the station or elsewhere. This applies to persons who are able to pay as well as to those who cannot.

Station operators, however, feel richly rewarded for their time and effort in this volunteer service. Letters of commendation come in regularly to stations and chapter headquarters praising attendants for their prompt and efficient work in saving lives of accident victims. Typical is a report recently received from the Buchanan County chapter telling of an accident case handled by Mr. and Mrs. E. W. Harbeck at their Red Cross Highway First Aid Station in the Harbeck Grocery and Service Station near Halls, Missouri.

Although the accident happened a year ago, the man who was injured, now recovered from a broken neck, comes in regularly to repeat his thanks to Mr. and Mrs. Harbeck for their aid. The accident happened during last year's hunting season. The

man's car overturned within hearing distance of the station. When Mr. and Mrs. Harbeck arrived, they found the man had been thrown into the back of the car, the machine itself upside down and gasoline from a punctured tank streaming over him.

Warning the crowd that collected not to smoke or light matches, the Harbecks carefully removed the man from the wreckage. Nothing but a few small scratches showed on the man's body but closer examination revealed the pupil of one eye larger than the other. They knew that he was seriously hurt with probably a skull fracture or spine injury. They made him lie quietly while they treated him for shock until the ambulance came, despite his weak protestations that he was all right and wanted to go to his hunting shack to rest.

A few months later the man walked into their store wearing a neck brace. He told them they had saved his life by going against his wishes and sending him to the hospital. His doctor, he said, had told him had there not been some one at the scene of the accident who knew first aid and allowed no movement he would have lost his life or been partially paralyzed. Instances such as this have been numerous in every state since this program has grown to its present size.

The Red Cross has inaugurated a more recent program of Red Cross Mobile First Aid Units to work in conjunction with the fixed highway stations as a further step in its highway first aid program. These units, made up of fleets of trucks, automobiles and motorcycles of large companies such as public

utilities and state highway patrols which cover the highways regularly, are formed by employees trained in the standard and advanced first aid courses. Each vehicle carries complete first aid equipment. These units are being developed to bring trained aid even nearer to scenes of highway accidents as they operate between the permanently placed stations.

The Missouri State Highway Patrol, under Col. B. M. Casteel, was one of the earlier mobile units to be authorized, with 83 vehicles and 135 men trained in Red Cross standard and advanced first aid. Since the authorization of the Patrol as mobile first aid units 2623 accidents have been investigated by members of the Patrol who were at the scene of the accident at the time of occurrence or shortly thereafter. Of these accidents 260 resulted in fatal injuries, 1316 were injuries to persons which did not result in death, and 1047 involved only property damage.

With 4505 Red Cross Emergency First Aid Stations, fixed and mobile, now established on highways throughout the nation, this program can no longer be classed as an experimental effort. As in Missouri, other stations over the country are doing their part toward materially reducing the death and permanent injury toll on the highways. As each new station is established in this long term program, another link is welded in a great chain of volunteer cooperative service, further bridging the precious gap between the accident and the time a patient may be placed in the care of a physician.

MOTOR MISHAPS AND THE MEDICAL PROFESSION

HARRY D. GRIFFITH

JEFFERSON CITY, MO.

No profession is more concerned with accidents on our highways than is that of medicine. In recent years as the toll of life and limb has steadily mounted (happily this year there is indication of a national decline but not in Missouri) medical men have not been lax in preventive measures. As individuals and in groups they have joined with other citizens in every effort to minimize highway accidents. But, realizing that accidents will occur regardless of how efficient the effort toward prevention may be, medical men have gone further and equipped themselves to care better for the injured.

When motor cars smash up along the highways and human beings lie mangled and moaning for help the first cry is for the doctor; and what fine response he has made!

The doctor has a more intimate acquaintance-ship with the horrors and gruesome details of motor mishaps than has any of the rest of us and he has full realization that prevention is much better than cure; and much cheaper, too. In 1925, when motor

accidents began to assume alarming proportions, the doctor was among the first to realize the need of organized effort to lighten the shadow fast darkening national life. He began studying the question through the American Medical Association and state and county groups.

These studies have developed many interesting facts, some of which were discussed by Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association, in an interesting article appearing in a recent number of *Public Safety*, a magazine published by the National Safety Council. I quote from Dr. Bauer's article.

Poor vision, due either to obstruction or to visual defect, is a common cause of accidents involving motor cars. A valuable medical contribution was the discovery of night blindness as a probable cause of accidents at night. More fatal accidents occur at night than during daylight hours.

Night blindness is one of the early signs of deficiency of vitamin A in the diet. This is readily prevented and in early cases, due only to faulty diet, cured by a diet rich in cream, butter, golden-yellow and green vegetables and fish liver oils, notably cod, halibut, salmon and the percomorph group of fishes.

Safety Engineer, Missouri State Highway Department.

From diet to violent death may not be a far cry where night blindness exists.

Another study brought to light in graphic if somewhat horrible detail the havoc inflicted by projecting door handles which in many instances caused severe gouging injuries to the face or other parts and sometimes ripped limbs from the body as a speeding car passed close to a pedestrian.

Another exhibit showed the prevalence of face injuries in women riding at the right of the driver who were thrown against projecting gadgets on the instrument board. Still another exhibit stressed the part skull fractures play in automobile injuries, and especially the measures to be adopted in the first twenty-four hours after injury.

These facts resulted in changes in automobile design. Door handles now are usually curved inward so they cannot hook anything, and instruments are flush or sunken wherever possible.

The American Medical Association's Exhibit Committee on Fractures has had demonstrations at several of the meetings of the American Medical Association. They consisted of charts, sloganized advice such as "splint 'em where they lie" and similar epigrammatic fracture truths. They included demonstrations showing the correct way to apply splints, traction and casts. They preached incessantly the following gospel on fractures from the American Medical Association "Primer on Fractures" which, if universally applied, will do more than any one factor to minimize undesirable results: "Early splinting and application of traction will lessen deformity, decrease shock, and make early and complete reduction of fragments easy to accomplish. The fault today in emergency treatment is not that it is not well done, but that it is not applied soon enough."

The section on ophthalmology has sponsored an exhibit on first aid in eye injuries, in which the automobile as a causative factor received due emphasis, with the specific recommendation for safety glass in all windows of the car. This is now almost, if not completely, a universal practice in automobile building and the reduction in cutting injuries has been marked, even in the face of a rising toll of automobile casualties.

Several exhibits have been shown at American Medical Association and state medical association meetings, showing chemical procedures for detecting the presence of alcohol in the blood or in the breath of persons involved in motor accidents.

Color blindness is of particular importance where response to stop-and-go traffic signals is involved. Not all have the appropriate word combined with the color signal, and there is no standard as to whether the red or the green is to be at the top, the bottom or, in the four-light signals now being used, in some middle position. The National Society for the Prevention of Blindness, in a report in 1933, stated that this is the least important of the visual examinations but admits the necessity for being able to see and interpret the signals.

The Section on Ophthalmology of the American Medical Association has had a committee on visual standards for automobile drivers since 1925. A special committee of the Section reported at the Atlantic City Session in 1937, in part, as follows:

"In nearly all types of accidents, except faulty mechanism, all investigators agree that physical or mental defects of the driver have a part, good vision being of paramount importance. . . . The measure of good vision alone does not measure the driver's ability to interpret and act on what is seen. However, good vision is essential in order to obtain the transmission of proper sensory impressions to these other essential functions."

The recommendations of the committee, in brief, are as follow:

1. Bureaus of licensure for drivers in every state and as many smaller units as necessary.
2. Unlimited license to those who: (a) pass the tests;

(b) correct physical defects or acquire necessary skill to pass subsequent tests, (c) physician to report findings and recommend action; local bureau to have final jurisdiction.

3. Limited license to those who exhibit borderline defects or partial incapacities; license to show limitations; but no limited license to drivers in public transportation.

4. This report does not include recommendations other than those relating to vision.

5. Visual tests and standards; instructions for conducting the tests (details omitted here).

6. Minimum visual standards for licensure: (a) visual acuity with or without glasses of 20/40 in one eye and 20/100 by Snellen test in the other; (b) a form field of not less than 45 degrees to both sides laterally from point of fixation; (c) binocular single vision, (d) ability to distinguish red, green and yellow. Glasses, when required, must be worn while driving, and those employed in public transportation must carry an extra pair.

7. Visual standards for limited license: (a) visual acuity shall be not less than 20/65 by Snellen test in the better eye (the one eyed and the color blind are not qualified); (b) field of vision shall be not less than 125 degrees horizontally in one eye; (c) double vision shall not be present, (d) other personal qualities should rate high to make up for the visual defects.

8. Renewals of license are recommended at least every third year with appropriate tests and examinations.

The Association also had a committee which recommended drivers' examination and licensing, emphasized the importance of alcohol as a contributory cause of accidents, recommended a campaign of education in safety on the highway to be sponsored by the Association and made recommendations for more intensive study of the following factors: mental and physical defects, drugs, carbon monoxide, alcohol and fatigue.

The individual physician plays his part through his private relationship with his patient. He can do what cannot be done in public campaigns.

He can advise the diabetic of the dangers inherent in insulin shock, and how this accident is easily prevented by having handy for instant use a few lumps of sugar or an orange. He can counsel the deafened of their special limitations as drivers, though these persons are often excellent and safe drivers because they learn to concentrate on driving without the use of the sense of hearing.

He can stress to the normal patient the menace of fatigue from driving too long and too fast or under bad conditions of road, visibility and weather, and emphasize the dangers in "pep" tablets and hot coffee to keep a jaded driver awake.

Speaking of contributions, there is one which is, in every sense of the word, a gift from the medical profession and from hospitals to the community. That is the loss sustained by doctors and hospitals in the emergency care of persons injured in automobile crashes, cared for in their acute need and either unable or unwilling to pay for services rendered.

Many doctors, after caring for such a patient, simply shrug their shoulders and charge it to charity. Hospitals, too, are heavy losers. In Ohio, a state which seems to have a fairly representative composition of cities and rural areas, the loss to hospitals was estimated by Frank West, State Registrar of Motor Vehicles, to be in round numbers \$350,000 a year in 1931, 1932 and 1933.

If motor casualties continue at the present rate, Missouri will reach a new high point in highway killings this year—and most of these accidents are of a preventable nature. Accidents do not just happen. They are caused.

Realizing the need of bringing together every group interested in the arrest of this great prob-

lem, there has recently been formed in Missouri under the auspices of the Highway Department, an organization known as The Missouri Association for Traffic Safety which will seek to deal with the problem through an eight-point program in which many have already signified interest.

Missouri needs the benefits of medical studies in carrying on the work of this new organization and I am sure that we will enjoy the complete cooperation of the medical profession. The State Highway Department will welcome communications from the profession.

HEMORRHOIDS

STUDY OF A SERIES OF CASES IMPROVED BY
CONSERVATIVE TREATMENT

G. LYNN KRAUSE, M.D.

ST. LOUIS

Since the earliest record of medical observation the problem of hemorrhoids has existed and though always a common ailment the etiology has remained a matter of controversy. There is scarcely any pathological condition to which hemorrhoids have not been attributed. Although the obvious choice of treatment is surgical, a large group of selected cases has been studied with the idea of evaluating and improving the conservative technic.

The surgical management of hemorrhoids is not always satisfactory because there is a certain percentage of cases which show recurrence following the surgical procedure. It is questionable whether the same hemorrhoid returns or whether it is a new one.

There are three methods of procedure used in treating hemorrhoids: first, surgery, which is invaluable in certain types of cases; second, injection, which has certainly merited use in a large group of cases comprising this report (discussed in detail later), and third, palliative or medical treatment.

The object of the injection method of treatment is to effect a cure of the condition without surgery. One necessarily must select carefully the type of hemorrhoid to be injected. The anatomy of this part of the rectum makes it difficult to secure permanent cure by surgery for the internal type of hemorrhoid, or for the prolapses. In considering the soundness of the injection method one must remember that hemorrhoids are varicose veins of the hemorrhoidal plexus, the veins arising from the inferior and superior hemorrhoidal veins. The internal hemorrhoid lies above the mucocutaneous line and is covered by the relatively insensitive mucosa of the bowel; the external hemorrhoid lies beneath the skin below the mucocutaneous line. Often the internal and external hemorrhoids merge into each other and the venous plexus which is varicose may be both an internal and an external hemorrhoid, virtually one.

ANATOMY OF THE RECTUM

The rectum proper (intestinum rectum: second portion of the rectum) is the comparatively dilated portion of the large bowel which intervenes be-

tween the pelvic colon and the anal canal. When viewed from the front, the rectum is seen to be regularly folded from side to side in a zigzag fashion, these folds being slightly more marked when the rectum is empty. These flexures appear in the interior as three prominent crescentic shelves known as the rectal valves, which help to support the fecal contents when the rectum is distended. The length of the rectum usually measures from five to six inches but may be longer. Its diameter is smallest above near the junction with the pelvic colon, and is greatest below near the anal canal where there is a special enlargement known as the rectal ampulla. When empty the rectum measures little more than an inch in diameter, but in the state of extreme distention it may be as much as three inches in width.

The Anal Canal.—In order to reach the exterior it is necessary for the lower end of the bowel to pierce the floor of the pelvis. This it does by passing through the narrow interval left between the mesial borders of the levatores ani muscles. As it passes between them the two muscles pinch into the tube and by the apposition of its lateral walls obliterate its cavity, reducing it to a mere slit-like passage. This passage is known as the "anal canal." The anal canal begins where the rectum terminates; namely, at the level of the levator ani muscle and ends at the anus or anal orifice by opening on the exterior. The length of the anal canal is from one to one and one half inches, being greater when the bowel is empty and less when it is distended. The direction of the anal canal is downward and backward, often forming an angle of nearly 45 degrees with the horizontal. It is surrounded by both the external and internal sphincters and above by the borders of the levatores ani muscles. On each side is situated the ischioanal fossa with its contained fat which allows for the distention of the canal during the passage of feces. Behind is placed a mass of mixed connective and muscular tissue known as the anococcygeal body which lies between it and the coccyx. (See figure 1.)

The wall of the rectum is made up of four coats; namely, (1) The outer coat is formed in part of peritoneum and where the peritoneum is absent by connective tissue. In this connective tissue the hemorrhoidal vessels run until they pierce the wall of the tube. (2) The muscular coat, which is here much thicker than in any other portion of the intestine, is composed of two stout layers of unstriated muscle, an outer longitudinal and an inner circular, like that of the intestine generally. (3) The

submucous coat is composed of loose tissue which allows free movement of the mucous layer on the muscular coat and which also admits, under certain abnormal conditions, a prolapse of the mucous membrane and varicose veins through the anal orifice. The hemorrhoidal plexus of veins is contained in this layer. (4) The mucous coat must be considered separately in the rectum and anal canal. That of the rectum is redder in color than the mucous membrane of the colon as a result of its vascularity. It is also thicker and owing to the looseness of the underlying submucosa is thrown into numerous irregular rugae when the rectum is empty. These disappear when the bowel is distended and there then become evident three and sometimes more crescentic folds which are much less noticeable in the empty state; these have already been referred to as the rectal valves. The mucous membrane of the rectum presents a characteristic punctated appearance due to the presence of a considerable number of rounded depressions such as might be made by firmly pressing a finely pointed pencil against the membrane.

COMMON DISEASES OF THE RECTUM

The simple ulcerations are those due to traumatism or solution of the surface from any cause, followed by infection from the bacteria present in the intestinal canal. They are: (1) traumatic, (2) catarrhal, (3) varicose, (4) hemorrhoidal, (5) follicular and (6) strictural.

Specific ulcers are those due to infection by bacilli not normally present in the human system. They are: (1) tuberculous, (2) venereal, (3) dysenteric, (4) diphtheritic.

The systemic types are those due or at least sec-

ondary to constitutional or organic diseases. They are: (1) nephritic, (2) diabetic, (3) trophic, (4) hepatic, (5) marasmic, (6) malignant and (7) agranulocytic angina.

The diseases of the rectum which will be considered in this discussion are primarily hemorrhoids, fissures and prolapses.

HEMORRHOIDS

External Hemorrhoids.—The external hemorrhoid is recognized by the following: It is completely or partially covered by skin; all the tissue involved lies below the anorectal line, and the veins all belong to the inferior group of vessels.

External hemorrhoids present three varieties for consideration: namely, the thrombotic pile, the cutaneous hypertrophy and the intra-anal varicosity.

The thrombotic hemorrhoid is an acute condition, coming on suddenly accompanied by a sense of fullness and discomfort. Inspection reveals a swelling of the skin at the margin of the anus, the blue color of the clotted blood showing through the skin. At times the skin is acutely inflamed, being congested and discolored. There may be edema and swelling; there may be a single clot or multiple thromboses. Thrombotic piles are essentially traumatic in origin, the result of either diarrhea or constipation. The internal hemorrhoid may accompany this type, thereby increasing the discomfort. This condition is frequently seen following childbirth.

The cutaneous or hypertrophic form of external hemorrhoid consists of a prolongation and overgrowth of the anal skin produced in most cases by repeated attacks of inflammation. Excessive straining at stool as well as a spastic sphincter are common causes. The main discomfort here is the annoyance of the tabs and keeping the parts clean. These folds at times become acutely inflamed causing discomfort. Should anal eczema or pruritus develop, suppuration may occur resulting in the formation of a marginal abscess to be followed by a fistula.

The intra-anal varicosity type of hemorrhoid is often confused with the internal hemorrhoid; however if the hemorrhoid has a skin covering it must be classified in the external group. It is frequently seen in young people and may be due to a congenital weakness in the veins. It is also frequently associated with long chronic cases of external and internal hemorrhoids. When not inflamed the only symptom is protrusion during stool.

Treatment.—The treatment of external hemorrhoids consists in the removal of the offending tumor or tumors and at the same time preventing if possible a recurrence of the condition by removing the cause if it is known. The most effective method is surgical removal.

Internal Hemorrhoids.—The internal hemorrhoid is covered by mucous membrane and limited at its lower border by this same anorectal line. The veins here involved belong to the middle or superior

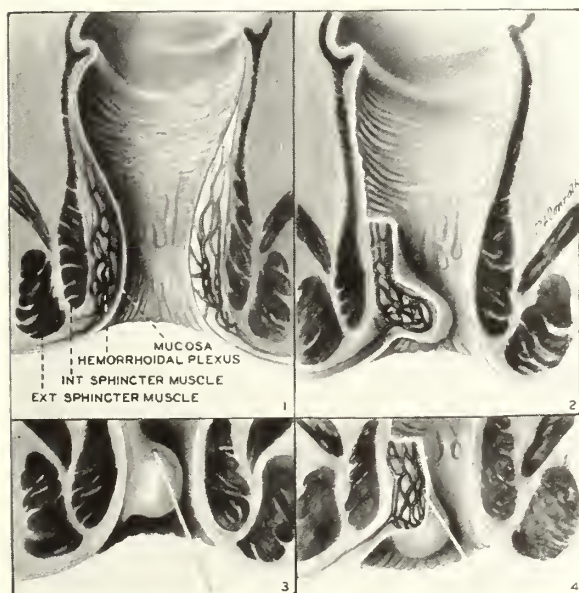


Fig. 1. Normal anatomy. Fig. 2. Section of internal hemorrhoid. Fig. 3. Position of needle during injection. Fig. 4. Section of hemorrhoid showing relation of needle to mucous layer and hemorrhoid.

hemorrhoidal system. It makes no difference how far a pile is prolapsed it is always an internal hemorrhoid if covered by mucosa. Sometimes a large hemorrhoidal mass is covered by both mucosa and skin; this type is a combination of the internal and external hemorrhoid.

Internal hemorrhoids begin as simple varices which may result in true tumors. The so-called strawberry pile which is a result of dilatation of the venules of the rectal mucosa rarely form a definite tumor mass. (See figure 2.)

Study of the stages involved seems to indicate that the sequence of events in the etiology of internal hemorrhoids is as follows: During repeated straining the mucosa, subjected to abnormal pressure, prolapses downward, compressing veins to produce stasis, dilatation, thrombosis and inflammation; the mass enlarges as a mucosa-covered, plum colored, fusiform tumor, the typical internal hemorrhoid.

Treatment.—Injection method in selected cases or surgery are the treatment.

Hemorrhoids are symptomized in various ways: (1) by direct irritation as itching, bleeding or pain from fissures; (2) by reflex disturbances through the gastro-intestinal tract as constipation, flatulence, nausea or vomiting; (3) by absorption of bacterial products from infected areas in the rectal crypts which may cause systemic disorders similar to those from infected tonsils or other focal infections. The subjective symptoms of rectal lesions are lassitude, vague fears, indefinite pains and numerous phenomena, so-called neurasthenia. Severe vomiting with abdominal pain, with or without distention, may be due frequently to rectal irritation.

Warning must be made against "snapshot diagnosis" of hemorrhoids. Careful routine proctosigmoidoscopic examination will avoid numerous mistakes. There are other conditions which may resemble hemorrhoids as to history; one that must always be considered is carcinoma of the rectum. Hemorrhoids, fissures and chronic ulceration of the mucosa are considered together but can be readily differentiated if the proper examination be made.

Daniel reports, as a result of his own experiences, common conditions misdiagnosed and mistreated as internal hemorrhoids, such as ulcers, external thrombotic hemorrhoids, skin tags, abscesses, chronic ulcerative proctitis and colitis, amebic proctitis, crepitis and papillitis, anal pruritus, tumors, carcinoma, genito-urinary disease and diseases of the female pelvis.

HISTORY AND DESCRIPTION OF INJECTION METHOD

The injection treatment of hemorrhoids is said by Andrews¹ to have originated with Mitchell of Clinton, Illinois, in 1871. The method was kept secret and rights to practice it in certain districts were sold to drug clerks, farmers, irregular practitioners or to anyone who had the money to pay for them. It soon fell into the hands of uneducated and irresponsible charlatans who traveled from

town to town, recklessly performing the operation upon all kinds of cases, sometimes injecting polypi and even carcinoma.

It was found in Andrews' statistics that a number of bad results followed this type of treatment. He collected over three thousand cases and while his records were not sufficiently complete for analysis, the method employed by that group of people showed remarkably good results even under adverse circumstances. Poor results after the injection method follows in many cases by not selecting the type of cases for injection. The type of hemorrhoid in which injection may be used is the internal hemorrhoid. The size of the hemorrhoid is no contraindication to the injection method so long as it completely collapses when pushed up into the rectum. (Some observers maintain that injection treatment should not be used in the presence of ulceration, but in this series the presence of ulceration has not prevented a favorable result.) Sporadic reference has been made in the literature by Milligan, Hurley, Martin and others to the occasional phenomenal improvement in hemorrhoid cases following the injection of sclerosing solutions.

After considerable study it is found that the most efficient procedure for the internal hemorrhoid or partial prolapse of the rectum (with or without hemorrhoids) is an injection method which will not cause a sloughing but will produce a mechanical or chemical irritation of the submucosa layer, forming a sclerosis or adhesions between the mucous membrane and the muscular layer. The principle of this theory is that the scarring causes a firmer attachment between the loose submucosa and muscular layers, thus preventing prolapse of the mucous membrane. This, in turn, should cause a pressure on the hemorrhoidal veins which will decrease the varicosity of the veins. The injection as described herein is not the injection of the hemorrhoid itself, but rather an injection around and above the hemorrhoid just beneath the mucous membrane. (See figures 3 and 4.)

Procedure.—The position of the patient at the time of examination is important, either the Simms position or the inverted or knee-chest position being used depending upon the convenience of the operator. A digital examination should be made first, palpating the anal canal within the rectum to determine the size and location of the hemorrhoid; an anoscope should then be introduced gently with the patient as relaxed as possible and breathing through the mouth. Force should never be used. It is important to use a scope which is not too large but large enough to afford perfect vision and having a light attached either just inside or immediately on the outside. (See figure 5.)

Observing the hemorrhoid as it is brought into the scope and remembering the anatomy, one must first locate the mucocutaneous juncture and ascertain whether there is any skin covering the hemorrhoid or whether it is completely covered by mucous membrane. The needle should be inserted

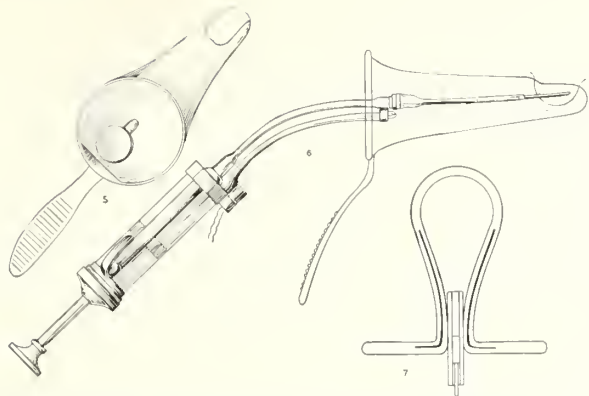


Fig. 5. Type of scope used. Fig. 6. Light attachment to adapter of syringe as devised and used by writer for the last three years. Fig. 7. Rectal plug.

just beneath the mucous membrane, above and around the hemorrhoid. One should be careful that the tip of the needle is not "fixed," for should this be the case it is within the muscle. Injection should be made slowly and with little or no pressure. If there is any whiteness or bleb formation it is an indication that the needle has not passed through the layer of the mucous membrane and should injection continue a sloughing will occur. With the needle in position, the extent of injection depends upon the size and looseness of the mucous membrane around and above the hemorrhoid. There will be a definite balloon effect and a light pinkish coloring of the mucous membrane seen. When the mucous membrane blanches that is sufficient. It is rarely necessary to inject more than 10 to 15 minims at any one injection. The success of the injection method will naturally depend upon the type of hemorrhoid selected and in the case of prolapse its duration.

It was suggested by E. F. St. John Lyburn, M.B., Dublin,² that a plug be inserted in the anal canal for pressure following the injection, which increases the effect of forming adhesions between the mucous and submucous membranes and the muscular layer. The diagram in figure 7 is the type of plug used by the writer.

The solutions used in these injections were either 5 per cent phenol in sterile olive oil or 5 per cent quinine urea hydrochloride.

Following the injection the mucous membrane is gently massaged, a suppository or plug inserted and the patient advised not to strain or have a stool within the next twelve to twenty-four hours.

It has been noted that there has been no pain during the treatment nor discomfort following. The symptom that is immediately relieved is the bleeding and after a time, the itching. The prolapse soon disappears and the patient is comfortable, especially during stool.

From a group of one hundred cases, seventy-five were selected for the injection treatment; the age range was between 16 and 86 years, fifty-two cases being within the decade of 40 to 50. The commonest intercurrent general disease was found, of

course, to be chronic constipation. Three cases occurred with cirrhosis of the liver. Bleeding, pain and protrusion was a universal complaint. Itching occurred in 60 per cent of cases observed, of which ten cases showed pruritus.

The treatment interval varied from five to ten days, bleeding persisting in every case until the last ulcerated site had disappeared; for this reason the ulcerated spot was always chosen for the first injection. Pain symptoms, bleeding and protrusion invariably improved following the first and second injection. Pruritus with itching was noted to be the most resistant condition and in every case was the last to disappear; as noted by Terrell³ the moist zone of pruritus was commonly involved with fungus activity because of the favorable media provided for fungus growth. All cases reflected the result of their chronic complaints in constitutional changes such as nervousness, lack of endurance and emotional instability. Seventy-one cases were ambulatory with normal activity restricted; the remaining four were hospital cases because of advanced medical diseases.

Contrary to the expected predominance among females, the group is evenly divided between males and females. This apparent inconsistency is laid to the fact that twenty-two cases were in the professional class who were eager to avoid loss of time from their routine. A number of these were physicians. It is to be noted that in reviewing large numbers of patients in the charity clinic extremely few individuals engaged in heavy manual labor were affected; the sedentary class, or the office group whose dietary habits are irregular, predominate the entire series.

One case discontinued treatment because of pain following the first injection. Slight hemorrhage following injection occurred in two cases but spontaneously subsided. One case had a small sloughing spot on the fourth day after the first injection which was obviously caused by too shallow infiltration of tissue and perhaps the use of too much chemical. Five cases with internal hemorrhoids and chronic fistulae were treated; the hemorrhoids were treated by injection and the fistulae later eradicated by surgery. Sixteen cases were complicated with fissures only one of which resisted treatment by injection and treatment of ulceration. One case returned after a period of a year showing signs of an early internal hemorrhoid; this was injected and the patient discharged after two weeks' observation.

SUMMARY

Just what is accomplished by the injection method treatment may be reasonably summed up in a few words. It is possible to inject sclerosing solutions beneath the mucous layer thereby producing an irritative chemical infiltration in the tissues between the mucosa and muscular layers, the results of which are the obliteration of the veins and scar tissue formation, correcting the prolapse.

Entirely impartial as to choice of surgical or non-

surgical methods for the relief of hemorrhoids, experience proves that as much skill is required for proper use of injection therapy as for a satisfactory hemorrhoidectomy. It is a sound procedure and takes at least two to four weeks of treatment for satisfactory results. The injection method is a surgical procedure and must be handled as such, not only with respect to the anatomy, but also the various pathological conditions in this region, proper selection of the cases, proper exposure and the use of proper instruments for the injection. The permanency of results depends first, upon the selection of proper cases and, second, upon the number of injections. From 5 to 10 per cent is likely to recur, comparing favorably with the number which recur following surgery.

In view of the fact that the injection method has proved so highly satisfactory in the large percentage of hemorrhoid cases selected for that type of treatment, it should be given fair consideration. Surgical treatment means discomfort following hemorrhoidectomy, expense of hospitalization, use of an anesthetic with its risk and a loss of activity of the patient for that period of time in which the patient is hospitalized; thus it would seem logical to treat selected cases by the injection method whenever possible.

Beaumont Building.

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MAY FIND NEW RESPIRATORY TRACT DISEASE

What may prove to be a new disease of the respiratory tract, as yet unnamed, which produces symptoms of atypical pneumonia or encephalitis (inflammation of the brain) is reported by Hobart A. Reimann, M.D., Philadelphia, in *The Journal of the American Medical Association* for December 24.

The disease, encountered by the author in eight patients, was not caused by the virus of epidemic influenza or psittacosis, nor was it like other commonly described diseases of the respiratory tract. The author regards it as a separate disease, pending the outcome of further experimental studies.

The ailment occurred in adults and began as a mild infection of the respiratory tract, followed by severe, diffuse, atypical pneumonia and in two cases by the symptoms of encephalitis. Difficult breathing, cyanosis, hoarseness, cough without sputum, drowsiness and profuse sweating were the chief characteristics. The disease lasted several weeks.

A filtrable infectious agent recovered from the nasopharynx of one patient and from the blood of another may have been related to the infection, but the evidence is incomplete. Experiments to clarify this point are under way.

The scientific mind must always fight against the tendency to jump to conclusions.—*Hygeia*.

ARTIFICIAL FEVER THERAPY

A REPORT ON THREE YEARS CLINICAL EXPERIENCE

LEON BROMBERG, M.D.

ST. LOUIS

Since the epochal announcement by Julius Wagner von Jauregg¹ in 1918 that inoculation with malaria could restore many sufferers from dementia paralytica to a useful life in society, the profession has generally come to believe that fever is one of the most important of the defense mechanisms against infection. Through the course of years many investigations pointed the way to this present well established concept. As far back as 1876, for example, Heydenreich² observed that spirilla of relapsing fever began to lose their motility quickly when in a medium heated to 40 C. or above. The inhibition of bacterial growth by elevated temperatures has been reported by Lüdke,³ Wright⁴ and others. In 1908 Rolly and Meltzer⁵ performed a series of interesting experiments which showed that heated animals were more resistant to bacterial infection than control animals which were not so treated. Sonne,⁶ in a similar study in 1922, demonstrated that guinea pigs whose body temperatures were raised by exposure to radiant heat were more resistant to vibriolysin and to tetanolysin and other toxins than unheated animals.

The manner in which fever brings about these beneficial changes is still far from understood and offers one of the most inviting and promising fields for clinical investigation. Reimann⁷ in a significant contribution in 1932 observed an increase in the globulin and fibrinogen content of the blood in most febrile infectious diseases. The same author has called attention to the fact that an increase in the titer of typhoid bacillus agglutinins as a result of fever due to other causes has been repeatedly observed clinically and experimentally. Lüdke,³ Friedberger and Bettac,⁸ and other workers cited by Reimann,⁷ have demonstrated an increase in agglutinins and hemolytic amboceptor through the simple expedient of heating their experimental animals. The salutary effect of an intercurrent febrile infection on the course of many disease states has been known for many years.

The development of physical methods for the induction and maintenance of fever has enabled the medical profession more readily to marshal these defense forces of the body in the treatment of disease. Now we are able to prescribe therapeutic fever within a predictable accuracy of a fraction of a degree Fahrenheit, which may be sustained at that level as long as the condition of the patient warrants or permits.

This controllability of physically induced fever is one of its obvious advantages over hyperthermia produced by bacterial, chemical or other thermogenic agents. Although it is probable that the mech-

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anism of stimulating the development of immune bodies is similar in all types of induced fever; there is much to be said in favor of a method which can be turned on, precisely controlled and then turned off. One cannot do this with malaria, intramuscular sulphur or intravenous injections of typhoid bacilli. Then, too, there are certain individuals who are resistant to these inocula. Physically induced fever can be regulated to accommodate the patient's individual tolerance or in keeping with his physical condition. By its use a higher temperature can be safely achieved and sustained. The method does not require long periods of hospitalization; the patient is not given a new disease or left in a debilitated state.

In expert hands hyperthermia brought about by physical methods is safer for the patient than that induced by malaria. The reported mortality in artificial fever has been less than $\frac{1}{2}$ per cent; in malaria the mortality has been variously estimated at from 4 per cent to 10 per cent (Vonderlehr,⁹ Bennett¹⁰). It should not be assumed, however, that artificial fever therapy is without grave inherent dangers of its own. It cannot be emphasized too much that the procedure is fraught with serious risk if improperly or indiscriminately employed. Nor can it be stressed too often that the training and the clinical judgment and experience of the personnel is far more important than the type of apparatus which is used. Artificial fever therapy is now, and probably always will be, strictly an institutional procedure and will require every safeguard which past experience has indicated.

At Barnes Hospital we insist on a thorough preliminary study of the patient on the medical service before the individual is accepted for fever therapy. This includes a complete physical examination with blood chemistry, electrocardiogram and other laboratory tests to determine as far as possible the patient's probable tolerance to this form of treatment. The same contraindications which would make a patient a poor risk for a major surgical procedure prevail. Overnight hospitalization is required after the conclusion of each session of fever therapy.

About three years ago, through the courtesy of Dr. Walter M. Simpson and Mr. Charles F. Kettering, two Kettering hypertherms were loaned to us for clinical research. We subscribe to the opinion of Desjardins¹¹ and Krusen¹² that this instrument is the safest, simplest and most easily controlled of all the physical modalities now available for therapeutic hyperthermia. The excellent clinical work and fundamental research contributions which have been made by investigators using other types of apparatus, notably Carpenter,^{13,14,15} Warren,^{13,14,15,16,17} Bierman,¹⁸ Neymann and Osborne,¹⁹ only strengthen what was stated previously, that the emphasis should be on the man and not the machine. One outstanding advantage of the Kettering hypertherms and similar air conditioned cabinets is that, unlike apparatus using electro-magnetic induction,

they permit continuous observation of the patient's rectal temperature through the medium of an electrical thermometer. Since the variation of as little as 1 or 2 F. in the body temperature may mean the difference between safety and collapse when we are dealing with critical levels of fever, in our opinion the routine use of a carefully calibrated electrical resistance thermometer is most helpful if not absolutely essential.

The Kettering hypertherm has been described fully in several publications.^{11,20,21} The technic of administration of artificial fever in Barnes Hospital has been covered in another paper by Francis M. Lutz and the author²² and need not be repeated here. During each session of fever therapy the nurse is in constant attendance and the physician is either in the treatment room or is immediately available.

NUMBER OF PATIENTS TREATED

Since the inauguration of the Department of Fever Therapy at Barnes Hospital three years ago, 290 patients have received 1300 treatments by hyperthermia. There have been no fatalities. Of the total number of patients there were twenty who could not continue treatment after the preliminary trial period; these individuals have, of course, been excluded from the analysis of clinical results which are presented in the subsequent tables.

REASONS FOR DISCONTINUANCE OF THERAPY

The reasons for discontinuance of treatment in the twenty cases were as follows: Three patients left the city before finishing the prescribed course of treatment. Three patients, who had been confined in other hospitals for several months suffering from advanced gonococcal arthritis associated with marked debility and loss of weight, experienced vascular collapse on the initial therapeutic trial and declined further treatment. Six patients proved mentally or emotionally incapable of taking this form of therapy. These six included: (1) a hysterical child of 14 years who was sent by the Welfare Bureau because of a chronic gonococcal pelvic infection; (2) a man of 24 with dementia praecox who developed the hallucination that he was being burned and crucified for the worldly sin that resulted in gonorrhea; (3) a man of 32 who, although symptomatically much improved after the first uneventful session of fever therapy given for gonococcal arthritis, was persuaded by his mother to discontinue treatment after she read a newspaper account "of a death of a woman in a fever machine in Florida"; (4) an adult male with syphilis who developed oppressive claustrophobia as soon as he was placed in the cabinet; (6) a housewife with gonococcal arthritis and an inoperable brain tumor who developed transient cerebral edema coincident with induction of fever.

In eight other individuals cessation of treatment was recommended because the patients did not seem to withstand the procedure well during the

initial trial period, were unusually uncooperative or could not meet the only open appointments on our schedule.

INDICATIONS FOR FEVER THERAPY

The clinical indications for, and limitations of, this promising therapeutic method as yet are not fully defined. As has been true of all new and effective forms of treatment, a wave of enthusiasm has greeted artificial hyperthermia and the literature already abounds in extravagant reports on both its merits and shortcomings. There is, indeed, a real danger that the unusual publicity recently accorded to fever therapy and its uncritical acceptance by the laity may lead to a period of abuse, misuse and exploitation in untrained or unprincipled hands. Such a train of events would inevitably impair the rational development and application of this useful procedure. The great need now is for further intensive study of the many problems in immunology and allied fields which have been opened up by the considerable clinical experience which has already been amassed in the use of artificial fever therapy.

Certainly the case for fever therapy has been established in three disease categories; namely, (1) gonococcal infections, particularly the complicated cases which are resistant to more conservative treatment; (2) neurosyphilis and, (3) chorea. The clinical results will first be summarized and discussed under these three headings.

GNOCOCCIC INFECTIONS OTHER THAN ARTHRITIS

Clinicians have known for many years that the gonococcus is a particularly thermolabile organism. Dr. Perry Bromberg and other pioneers in urology in America have called attention to the fact that they frequently observed spontaneous recovery of severe gonococcal infections in the presence of an intercurrent febrile reaction. Neisser²³ himself reported that it was difficult and often impossible to cultivate the gonococcus in patients with fever. The extensive thermal death time gradient studies of the gonococcus made by Carpenter, Boak, Mucci and Warren¹³ and the parallelism which these investigators demonstrated between their laboratory and clinical results did much to establish a sound scientific basis for the use of fever therapy in the treatment of gonococcal infections. The favorable clinical experiences of Desjardins, Stuhler and Popp,¹¹ Bierman and Horowitz,¹⁸ Simpson²⁰ and Owens,²⁴ and many others have proved the unquestionable usefulness, approaching specificity, of hyperthermia in the treatment of gonococcal infections, particularly in those cases which are complicated or resistant to more conservative care.

Most observers are agreed that clinical and bacteriological cure can be expected in approximately 90 per cent of individuals suffering from gonococcal infections if adequate fever therapy is administered.

Although Warren^{15, 16} and his associates have re-

ported excellent results with the use of a single prolonged session of high fever based on the predetermined thermal death time of the particular strain or strains of the invading organism, there are many serious practical objections to this method of treatment which admittedly increases the risk to the patient. As a routine procedure we have preferred to follow the plan of shorter treatments, usually of four or five hours duration each and repeated at the usual interval of every third day. We consider the first treatment of every patient as simply a trial which acquaints him with a new and occasionally alarming experience, which conditions his skin and heat regulating center to a deliberate insult and enables us to understand better his emotional and physical limits of tolerance to fever therapy. Many hardy and intelligent patients will take a full treatment the first time but we do not aim at any definite febrile goal or any certain number of hours of continuance of treatment in this trial session. In fact, we attribute in large measure the relative rarity of vascular collapse or other complications in our series of patients to this simple precaution. In subsequent sessions of fever the temperature of the patient suffering from gonococcal disease is usually sustained at 106.6 F. for an average period of from four to five hours.

Our clinical results in the treatment of gonococcal infections, other than arthritis, as shown in table 1, are in substantial agreement with the published reports of other workers.

Table 1. *Results of Fever Therapy in Gonococcal Infections Other Than Arthritis*

Group of Cases Under Analysis	No. of Patients	Average No. of Treatments	Not Improved	Improved	Well
Acute and chronic gonococcal urethritis, etc., in male	40	5	2	5	33
Acute and chronic gonococcal cervicitis, salpingitis, etc., in female	24	5	1	3	20
Total	64	Average 5	3 (4.6 per cent)	8 (12.4 per cent)	53 (83 per cent)

In the average case in this series a total of twenty one hours of fever was necessary to effect cure. (Of this amount sixteen hours were at 106 F. plus, and five hours were at from 104 to 106 F.) As a rule the chronic cases required less fever than the acute cases.

Our criteria of cure were the same as those outlined by Owens²⁴ and Desjardins et al.¹¹

It is of interest to observe that chronic or complicated gonococcal infections seem to respond to fever therapy more readily than the simple or uncomplicated cases. This would suggest that there is more involved in this method than the bactericidal effect of the elevated temperature alone. Stimulation of tissue immune bodies would seem to be an important factor also. Warren and Carpenter^{14, 15} have observed in certain cases of gonorrhea clinical cure

after hyperthermia which was equivalent to only a fraction of the thermal death time of the infective organism.

Owens²⁴ has reported and at Barnes Hospital we have seen patients who with rare exception have responded favorably to mild local treatment within a short period after the conclusion of hyperthermia which had been discontinued prematurely or which had been in itself insufficient to eradicate the infection.

GONOCOCCAL ARTHRITIS

The clinical results which have been reported in the treatment of gonococcal arthritis with artificial fever therapy are uniformly good. Clinicians such as Hench, Slocumb, Popp,²¹ Schnabel and Fetter,²⁶ Anderson, Arnold and Trautman²⁷ are agreed that clinical improvement or cure can be expected in almost 90 per cent of cases of gonococcal arthritis which come to the hospital for hyperthermia before bone and cartilage destruction has taken place to an irreparable degree. I know of no other field in modern therapeutics in which there is such consistent agreement among specialists. J. Albert Key²⁸ said in a discussion before the American Association for the Study and Control of Rheumatic Diseases: "Fever therapy is the best means available at present for the differential diagnosis of gonococcal arthritis. If the patient does not improve with adequate fever treatment, gonococcal arthritis is practically excluded."

At Barnes Hospital during the last three years we have treated forty cases of gonococcal arthritis with the results listed in table 2.

Table 2. Results of Fever Therapy in Gonococcal Arthritis

	No. of Patients	Average No. of Treatments	Not Improved	Improved	Well
Acute gonococcal arthritis in the male	23	5	1	3	19
Chronic gonococcal arthritis in the male	12	5		2	10
Acute gonococcal arthritis in the female	4	3		1	3
Chronic gonococcal arthritis in the female	1	6		1	
Total	40	Average 5	1 (2.5 per cent)	7 (17.5 per cent)	19 (80 per cent)

The one patient who was unimproved after fever therapy was considered by some consultants to be suffering from a type of nongonococcal arthritis. Even though there was doubt as to the correctness of the diagnosis in his case, the patient is included in the present series.

"Improved" means eradication of the focus of infection and complete freedom from symptoms but some limitation of joint motion as a residual of the disease.

In four of the seven patients in this category, ankylosis of the affected joint was present before fever therapy.

"Well" means cured.

The advent of sulfanilamide has materially affected the status of artificial fever therapy in gonococcal infections. Fewer cases of serious gonococcal complications are now coming to our attention. It

would seem advisable for all patients suffering from gonococcal disease to have a therapeutic trial with sulfanilamide before resorting to the more drastic procedure of hyperthermia. A fortunate circumstance is that one can tell within five days, as a rule, whether or not sulfanilamide therapy is effective or should be pursued further. Cases which do not respond to adequate dosage of this drug within the first week will usually fail to improve with more prolonged treatment of the same type.

A number of clinicians have tried various combinations of sulfanilamide and fever therapy but the work is still in an experimental stage. Our own impression has been that patients do not tolerate hyperthermia well during the time that sulfanilamide is being given in effective dosage. Our present recommendation, therefore, is that this drug should be discontinued when a course of fever therapy is decided upon.

Further study and clinical experience will no doubt clarify many problems existing in this field. The present status of affairs was summarized well in a round table discussion at the New York Academy of Medicine in March 1938. Twenty-three nationally recognized specialists and health officers participated in this discussion.²⁵ They agreed on the following statements:

"While in the past treatment has called for the qualities of the artist rather than of the scientist, the reverse is now beginning to be the case. The change may be of no small importance from the viewpoint of controlling gonococcal infections and the second session (of the Advisory Council of the Milbank Memorial Fund) was accordingly devoted to the newer methods of treatment.

"The first of these and perhaps the most generally applicable is sulfanilamide therapy. There appear to be few contraindications to the use of this drug if the proper degree of supervision is maintained. Two general regimens of sulfanilamide treatment have so far been tried out. One method employs relatively large initial doses (six to eight grams a day), and the other employs smaller doses (one to five grams). The use of the larger doses requires more constant supervision and may lead to unpleasant side effects so that patients so treated are kept in bed and preferably in a hospital. Certain toxic symptoms may become pronounced enough to necessitate reduction of the dosage or, infrequently, resort to some other form of treatment. Occasionally, also, more ominous toxic manifestations appear and necessitate discontinuing treatment. These findings, however, have not been frequent enough to constitute a serious limitation on the use of sulfanilamide.

"Another method of treatment considered was that of fever therapy. Contraindications here were found somewhat more numerous than with sulfanilamide as a number of physical defects, especially circulatory ones, may impose serious limitations. Since the discovery of the importance of maintaining salt and fluid balances, fatalities with this method have been very few. Properly used, this is probably the most effective form of therapy for gonococcal infections, but the cost of treatment and the limited number of hospitals where the technic is safely and effectively used constitute its greatest limitation as a control measure. There is definite need for more generally applicable technics of fever therapy than those now in use and it is possible that with further research these may be devised."

NEUROSYPHILIS

Abundant laboratory and clinical experience, now accumulated in the literature, establishes beyond doubt the usefulness of fever therapy in the treatment of syphilis of the central nervous system. One of the first important studies on the resistance of various spirochetes to the action of physical agents was made by Bronfenbrenner and Noguchi²⁹ who showed in 1913 that virulent treponemes in physiological salt solution were sterilized in ten minutes at 45 C. temperature. As early as 1916, Engman³⁰ used nonspecific protein injections in the treatment of generalized early syphilis and noted some improvement in the skin eruption as a result of this therapy. In 1919, Weichbrodt and Jahnel³¹ showed that spirochetes in scrotal chancres in rabbits lost their motility and disappeared when these experimental animals were heated in a controlled incubator. In 1926 Schamberg and Rule³² demonstrated that daily hot baths could cure early syphilis in the rabbit. There have been a number of similar confirmatory laboratory studies, notably those of Bessemans of Ghent,³³ and the important researches of Boak, Carpenter and Warren¹⁵ on the thermolability of the *Treponema pallidum*.

The laity has known for generations that external heat, spontaneous or induced fever, exerted a favorable influence on the skin lesions and other external manifestations of syphilis. The momentous landmark in the development of clinical fever therapy was the success of Julius Wagner von Jauregg¹ in the treatment of paresis in 1918. At first he was bitterly criticized for his unorthodox audacity in engrafting one disease upon another but his brilliant results were in due time confirmed throughout the world and at last, in 1927, his genius was given the crowning reward of the Nobel prize.

Certainly the complex humoral and cellular changes which occur under fever therapy are not yet fully understood, but the reports of many observers^{10, 20, 34, 35, 36} show that comparable clinical results are achieved with malaria inocula and with fever induced by physical methods. As Simpson²⁰ has so clearly stated, "The value of artificially induced fever therapy as an adjunct to chemotherapy in the management of neurosyphilis is now firmly established. The one factor common to the wide variety of infectious, chemical and physical methods that have yielded comparable therapeutic results is simple fever production." The advantages of artificial fever therapy including absolute controllability, increased comfort and safety for the patient have been previously discussed. It should be emphasized that chemotherapy should also be employed, particularly after the conclusion of a course of fever therapy. The clinical reports of Hinsie and Blalock,³⁴ Ebaugh and Barnacle,³⁵ Bennett¹⁰ and Simpson²⁰ are noteworthy. Bennett,¹⁰ of the University of Nebraska, has stated in a recent article: "A combination of artificial fever therapy by means of the Kettering hypertherm and chemotherapy has uniformly relieved intractable lightning

pains and gastric crises in eleven patients. These results were obtained after other active therapeutic measures had failed. Other resistant tabetic symptoms such as ataxia, cord bladders, paresthesias and head pains were likewise improved in the majority of fourteen cases. I believe that this method of treating *tabes dorsalis* is the best method yet devised."

Our own clinical results in the treatment of patients suffering from syphilis in various stages and manifestations are detailed in table 3.

Table 3. Results of Fever Therapy in Syphilis (90 Patients)

Diagnosis	No. of Cases	Average No. Treatments	Not improved	Improved	Remarks
Tabes dorsalis	21	7	3 (1 patient had only 1 treatment)	18 (86%)	Relief of pain, etc. Gain in weight
Charcot joints	2	5	2		
Taboparesis	14	8	2	12	One patient could not take treatment
Paresis	21	8	3	18	One patient could not take treatment
Meningo-vascular	8	6		8	Marked and prompt improvement
Asymptomatic neurosyphilis	12	7		12	Serological and symptomatic
Latent syphilis	5	6		5	Serological and symptomatic
Early syphilis	2	4		2	Improvement of 2nd ^o eruption
Juvenile paresis	1	6		1	Decided clinical betterment
Gumma of gasserian ganglion	1	3		1	Relief of pain
8th nerve deafness	1	3	1		
Interstitial keratitis	3	4		3	
Optic neuritis	3	4		3	Objective and subjective
Optic atrophy	5	3	4	1	
Chorioretinitis	1	4	1		
Gumma of humerus	1	6		1	Prompt healing and relief of pain

CHOREA

Regardless of how the fever is engendered, there is no further doubt concerning the efficacy of hyperpyrexia in the treatment of chorea. Sutton and Dodge³⁷ have reported satisfactory therapeutic results in the treatment of 300 children suffering from chorea. In most of these cases fever was induced through the use of triple typhoid vaccine given intravenously. More recently these workers have continued their studies on chorea with the use of a radiant energy cabinet similar to that employed by Stafford Warren and his colleagues. With regard to the relative merits of the two methods of fever therapy Sutton and Dodge stated: "The disadvantages of producing fever by the intravenous injections of triple typhoid vaccine are the occurrence of protein shock, which may be very severe following the first two or three injections, and the inability to control the fever or to maintain it at the desired level for any appreciable length of time. Analysis of the

first sixteen cases treated by physically induced fever with the Warren radiant energy cabinet shows that the results in terms of the duration of the chorea after one or two treatments are comparable to those obtained with a course of foreign protein injections. Certain advantages of physically induced fever may be mentioned: (1) The fever is controllable; (2) one or two treatments take the place of daily injections for a week or more of a foreign protein; (3) the patients appear distinctly less uncomfortable during treatment with radiant energy than during treatment with foreign protein shock, and (4) except for the day of treatment the burden on the nursing staff is much diminished."

Hench³⁸ has also reported that "results with artificial fever treatment of twenty-eight cases of chorea have been excellent. Many cases were cured and the majority notably improved. Associated endocarditis was not a contraindication." Barnacle, Ewalt and Ebaugh³⁹ have reported on thirteen cases of chorea treated by artificial fever with the Kettering hypertherm, as follows: "Results thus far have been excellent, with recovery in all cases. Advanced rheumatic endocarditis has not been contraindication to treatment. To date there have been no recurrences of chorea, though the period of observation has been short. Mechanically induced fever has certain advantage over induction by triple typhoid vaccine."

We have treated eleven cases of chorea with uniform improvement and relief of symptoms which followed so directly after fever therapy in each instance that a causal relationship was evident. One patient with advanced rheumatic heart disease withstood the treatment without mishap.

From four to five treatments have been found sufficient to effect clinical cure in our series. We believe that the optimum therapeutic temperature in this type of case is 105 F. rectally. The period of induction is usually shorter in active children than in adults and care must be exercised to keep the temperature within the prescribed limits. After the first session of artificial fever therapy, we have found that the children are entirely cooperative because their prompt clinical improvement is encouraging and apparent even to them. The treatments are usually repeated at three day intervals; during each session the "effective fever" is maintained for four hours.

Artificial fever therapy is today the method of choice in the treatment of Sydenham's chorea. There is also increasing evidence that the same procedure often benefits other manifestations of the rheumatic state such as carditis and arthritis.

EYE CONDITIONS

In the treatment of eye conditions the results of fever therapy are similar to those which have been previously observed following the stimulation of the defensive reaction of the body by intravenous typhoid vaccine injections, nonspecific protein therapy and other means. Our experience, similar to

that reported by Culler and Simpson⁴⁰ and McGavic,⁴² is detailed in table 4.

Table 4. *Eye Conditions Treated With Artificial Fever*

Diagnosis	No. of Cases	Average No. of Treatments	Not Improved	Improved	Well
Bilateral uveitis	1	1		1	
Herpes of cornea	1	2			1
Gonococcal iridocyclitis (severe)	1	6			1
Gonococcal ophthalmia (acute)	1	1			1
Gonococcal ophthalmia (chronic) (eyeball already destroyed)	1	2	1		
Optic atrophy (syphilitic)	5	3	4	1	
Chorioretinitis (syphilitic)	1	4	1		
Interstitial keratitis (syphilitic)	2	1		2	
Optic neuritis (syphilitic)	3	4		3	
Optic neuritis (nonspecific)	2	3		2	

BRUCELLOSIS, RHEUMATIC FEVER, RHEUMATIC CARDITIS

Earlier in this paper it was stated that the limitations and indications for fever therapy had not as yet been fully explored. Most interesting is the recent work of Prickman and Krusen⁴¹ which suggests that undulant fever may be included in the group of infectious diseases which are benefited by artificial fever. This is thought provoking with regard to the mechanism of cure involved in the use of fever therapy generally because the organisms in the *Brucella* group are among the most heat resistant known to bacteriologists. Thompson and Sheard⁴³ were unable to kill cultures of *Brucella abortus* in vitro with temperatures of 107 F. sustained for twenty-four hours. We have treated nine patients with proved brucellosis; the average number of sessions of hyperthermia was four for each patient. There was definite clinical and laboratory improvement in seven of these patients.

It is certainly worthy of mention that recent reports by Lucy Sutton Porter,³⁷ Bennett⁴⁴ and other careful workers have indicated that fever therapy may be just as beneficial in rheumatic fever and in rheumatic carditis as has already been established in the case of chorea.

MULTIPLE SCLEROSIS, CHRONIC INFECTIOUS ARTHRITIS

It should be emphatically stated at this point that fever therapy, although distinctly useful in the disease states named previously, is not by any means a panacea or a cure-all. Contrary to the enthusiastic reports which have come from certain other workers, our own experience in the use of artificial fever therapy in the treatment of multiple sclerosis has been most disappointing. We have subjected fifteen patients with advanced multiple sclerosis to an average of five weekly treatments each. Improvement, which was variable, was observed in only five instances.

Equally discouraging have been our results in chronic infectious (nongonococcal) arthritis. Out of a group of twelve patients who received an average of four treatments each, symptomatic improvement occurred in only four cases (33½ per cent).

MISCELLANEOUS CONDITIONS

Our clinical results in miscellaneous conditions not covered in the preceding discussion are listed in table 5. The wide variety of diagnostic headings should not be interpreted as a recommendation of fever therapy in these affections, not even in those isolated instances where improvement was noted. Trial of this method during the course of prolonged periods of clinical research seemed justified on two grounds: (1) No specific treatment was known for the diseases studied, and (2) some of these pathological states were known to have been favorably influenced during the spontaneous course of an intercurrent febrile infection or coincident with induced fever; e. g., the results in bronchial asthma reported by Phillips⁴⁵ and Bennett.⁴⁴

Table 5 is offered only as a preliminary clinical experimental report. Much further study and much longer observation in a larger series of cases will be necessary before any conclusions whatever can be drawn concerning the possible value of fever therapy in these heterogeneous conditions.

Table 5. *Effect of Fever Therapy in Miscellaneous Diseases (68 Patients)*

Diagnosis	No. of Cases	Average No. of Treatments	Not Improved	Improved	Well
Acrodynia	1	3	1		
Bronchial asthma	5	4	2	3	
Disseminate erythematous lupus	2	3	1	1	
Enderteritis obliterans	2	2	2		
Hereditary (Huntington's) chorea	1	1	1		
Herpes zoster	3	2		1	2
Lymphogranuloma inguinale	1	2		1	
Multiple sclerosis	15	5	10	5	
Nephrosis	1	3	1		
Nonspecific prostatitis	5	4	2	3	
Nonspecific cervicitis	4	4	2		2
Osteomyelitis	1	1	1		
Paralysis agitans	1	1	1		
Postencephalitic syndrome	5	4	3	2	
Psoriasis	1	4	1		
Rheumatic fever	2	3		2	
Subdeltoid bursitis	1	2			1
Undulant fever	9	4	2	7	
Amyotrophic lateral sclerosis	1	4	1		
Chronic ulcerative colitis	2	4	1	1	
Trigeminal neuralgia	1	3		1	
Spondylitis (Marie-Strumpell type)	1	2	1		
Inoperable carcinoma	3	4	3		

CONCLUSIONS

1. Artificial fever therapy is of established benefit in gonococcal infections. It is particularly use-

ful in complicated gonococcal infections or in those patients who have failed to improve under a more conservative regimen such as sulfanilamide and local treatment.

2. Artificial fever is a useful adjunct to chemotherapy in the treatment of neurosyphilis and has the advantage of controllability and safety when compared to malaria and other infectious thermogenic agents.

3. Fever therapy is probably the best available treatment for Sydenham's chorea.

4. This therapeutic procedure gives promise of real benefit in the treatment of brucellosis, rheumatic fever, certain inflammatory eye conditions and in other disease states which have been known to respond favorably to nonspecific protein therapy in the past.

5. Artificial fever therapy has inherent dangers and should be strictly an institutional procedure in the hands of expert personnel.

6. The results achieved in the treatment of 290 patients at Barnes Hospital are reported and analyzed under separate disease headings. There have been no fatalities.

Beaumont Building.

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EFFECT OF ULTRAVIOLET RADIATION

The greatest effect of ultraviolet radiation is that it enhances the assimilation of minerals, Henry Laurens, Ph.D., New Orleans, points out in *The Journal of the American Medical Association* for December 24.

Ultraviolet irradiation with wave lengths shorter than 3,150 (particularly 2,967 angstroms) causes calcium and phosphorus to be absorbed by the body more quickly, even when the diet is adequate. It rectifies the partial

lack of the components necessary for proper calcification of bone and teeth.

Ultraviolet radiation aids the production in the system of vitamin D, the agent which promotes normal calcium assimilation and retention of phosphorus. Therefore it may prevent and cure rickets, promote growth and prevent excessive loss of lime from the body. It apparently does not influence the healing of fractures. It is necessary not only for the development of teeth but for their protection later in life. In dental decay, rickets is only one of several etiologic factors.

Ultraviolet radiation may be used in the treatment of infantile tetany, a symptom complex occurring in rickets when the blood calcium is low. Owing to the suddenly increased mobilization and deposition of calcium in the growing bones when ultraviolet ray treatment is given to children with rickets, latent tetany may show itself.

Ultraviolet radiation must be used cautiously. Continued and prolonged exposure to sunlight or to the energy of artificial sources containing much ultraviolet may cause systemic or internal disturbances as well as inflammatory and degenerative changes in the skin. The systemic disturbances are not understood, but deaths of infants following short exposure and severe reactions in adults have been reported.

Repeated irritation by ultraviolet rays can cause chronic lesions, which may develop into cancer.

Almost all bacteria may be killed or weakened by ultraviolet rays, but there is considerable variation in the rapidity of their destruction. Those which live in the animal body are most easily affected. Those which live free in nature adapt themselves to the action of sunlight and so become relatively resistant to irradiation. Direct sunlight is a powerful germicide for all except a limited number of species of bacteria which utilize sunlight for metabolic processes.

Long continued darkness produces no marked effect as long as the diet is satisfactory.

While irradiation with ultraviolet may have some effect on secondary anemia, this is limited, not specific, and is far less efficient than dietetic and drug treatment. Intense ultraviolet radiation may result in abnormal white blood cell counts.

There is no absolute evidence that ultraviolet radiation increases resistance to specific or general infection, although a relationship between sunlight and the general course and character of disease, growth and nutrition has been demonstrated.

There is evidence that sunlight and artificial radiant energy may lower normal and elevated blood pressures. The lowered blood pressure of persons living in the tropics is the result of the action of a number of characteristics—racial, mode of life, meteorologic conditions and their changes—and cannot be correlated with the quantity and quality of radiation.

MEDICAL AID FOR JEWISH REFUGEES IN POLAND

At the German-Polish frontier many thousands of Jewish refugees from Germany have been arrested by the Polish authorities, the regular Poland correspondent of *The Journal of the American Medical Association* reports in the December 24 issue.

The refugees have lived under very bad hygienic conditions and have been exposed to undernutrition and atmospheric influences. The society for the health protection of the Jewish population in Poland, "TOZ," under the management of Dr. L. L. Wulman, has organized free medical aid for refugees. A hospital was established at the frontier with an isolation ward for patients with infectious diseases and three infirmaries for outpatients. The staff consists of fifteen physicians.

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JANUARY, 1939

EDITORIALS

HIGHWAY ACCIDENTS: TOPIC OF THE MONTH

"Highway Accidents" was chosen by the Post-graduate Correlating Committee to be the topic of the month for January and various phases of this subject are presented in this issue of THE JOURNAL. It is hoped that societies will discuss this subject at a meeting during the month. Several societies held scientific programs on "Pneumonia" in December, the topic chosen for that month.

"Syphilis" will be the topic of the month for February; "Maternal and Infant Care" for March, and "Cancer" for April.

ALCOHOLIC INTOXICATION

A resolution dealing with alcoholic intoxication and establishing of tests for the determination of alcoholic intoxication was introduced at the San Francisco Session of the American Medical Association. The Reference Committee on Miscellaneous Business, to which the resolution was referred, requested the Board of Trustees to initiate studies for the determination of definite, legally acceptable, scientific, clinical and laboratory tests for alcoholic intoxication and report such studies to the House of Delegates at the St. Louis 1939 Annual Session. The report of the reference committee was accepted. The resolution read:

WHEREAS, The medical and legal professions, the courts and the public have been repeatedly unable to determine legally the sobriety or the degree of intoxication of individuals accused of violating the established rules and laws of safety; and

WHEREAS, Such inefficient methods of clinical and laboratory diagnosis and legal procedures are unscientific and a direct cause of much unnecessary expense, litigation and suffering and directly encourage minor verdicts for major offenses; therefore be it

Resolved, That the executive council of the Iowa State Medical Society ask the cooperation of the American Medical Association in a study looking

toward the determination of definite, legally acceptable, scientific clinical and laboratory tests for alcoholic intoxication by

1. Studying and recommending such clinical and laboratory tests as have proved successful in Europe and in this country;

2. Prescribing a standard of qualifications of the persons, laboratories and hospitals taking and making these tests;

3. Suggesting such legislation as may be necessary to establish these clinical and laboratory tests;

4. Coordinating the medical and legal profession with the various police agencies and safety councils in this activity; and

5. Suggesting adequate financial support from such funds as may be available from the liquor license tax or elsewhere to supply equipment necessary to taking and making such tests.

VITAMIN D IN ARTHRITIS

During recent months physicians have been urged to prescribe vitamin D in large dosage for the relief of the patient with arthritis. Between 200,000 and 1,000,000 units of the substance have been recommended as the desirable daily dose. By contrast the vitamin D requirement of infants and children is not over 800 units daily. A quick cure of rickets may be expected after the administration of between 1000 and 1500 units daily. The dosage recommended for patients with arthritis is as much as 1200 times the ordinary prophylactic dose.

Harm might be expected to follow the exhibition of such tremendous amounts of vitamin D. However, in ordinary animal experiments 10,000 times the therapeutic or prophylactic dose is necessary to produce toxic effects. In occasional instances, however, cumulative toxic effects from the exhibition of doses only 600 times the prophylactic dose have been observed in the fourth generation of experimental animals. Hence there is good theoretical reason to believe that actual harm may result to the patient from the administration of the excessive dosage advised for the relief of arthritis.

Even were this form of therapy without potential danger more evidence than is at present at hand would be needed to justify its employment. Arthritis is notoriously a disease of unexplained remissions and exacerbations. It is only slowly progressive. It may undergo abatement for months without any therapy. Yet of 137 case reports culled from the literature, only 47 per cent showed improvement. This may be interpreted as the result of pure chance with odds approximately 1:1. Steinberg¹ who offers the latest report on the subject observed improvement in only 35 per cent of a series of forty patients with various types of arthritis. Certainly here the results are such as to make it certain that chance alone could account for all the improvement manifested.

1. Steinberg, C. L.: Massive Doses of Vitamin D in Chronic Arthritis, J. Lab. & Clin. Med. 24:17, 1938.

Steinberg discusses the effect of vitamin D upon the calcium and phosphorus partition in the blood, hence indirectly upon the metabolism of these substances in the body. For it follows that if the blood level of these chemicals changes there is a corresponding disturbance in their occurrence in the body. This investigator found that vitamin D might elevate or depress the blood calcium; that after continued administration it might exert an effect opposite to its primary effect. Most significant, however, is the fact that there was no correlation between the clinical improvement (or lack of it) and the direction of change exhibited by the blood calcium.

In considering Steinberg's results it must not be overlooked that all his patients received a diet planned to afford optimal nutrition. There is no method of measuring the efficacy of diet alone as a cause of the improvement shown by 35 per cent of his patients. There is no evidence to suggest that vitamin D affected in any manner the decalcification observed in the epiphyses of bones affected by atrophic arthritis.

It is difficult to understand how Steinberg could make the statement that "though there is no specific virtue in such medication . . . its toxicity has been overemphasized." In the first place, he employed only 160,000 units daily instead of the 200,000 to 1,000,000 units ordinarily recommended. In the second place, he was careful to control the diet of all his patients. In the third place, most of his patients received the medication for only a few weeks. And finally, although seemingly convinced of the harmlessness of massive doses of vitamin D he takes obviously apparent pains to emphasize the symptoms arising from overdosage with the product.

In the present state of knowledge it would seem infinitely wiser to restrict the employment of vitamin D to those conditions for which its indications are thoroughly understood. Certainly there is no reason to believe that it is of value in the treatment of arthritis. The publication of a paper such as Steinberg's, disclaiming a belief in the toxicity of the product, reporting its lack of efficacy in his own cases and stressing the possible dangers inherent to its administration should cause every physician a long pause before he prescribes it for his patients.

EMOTIONAL LYMPHOCYTOSIS

Laboratory examinations have assumed increasing importance in medical diagnosis. Next to urinalysis, blood counts are probably the most widely utilized of the routine examinations. The limits within which the cellular blood constituents vary have been set for years. It might be assumed that there could be no question as to the accuracy of these normal standards. Obviously such standards must be accurate for differential diagnosis may depend largely upon an exact blood count.

From time to time during the last decade or so tests based on an altered response of the differential blood count have been proposed as an aid to the differentiation of pathologic processes. It has not been many years since it was confidently asserted that liver function could be measured by the change in the total white blood count and especially in the relative number of lymphocytes by comparative counts made before and after the patient drank a glass of milk. Diagnostic methods based upon a similar digestive response occasionally make their appearance. At first glance they seem too simple. But statistics tending to prove their reliability are industriously compiled by their originators.

For these reasons the recent studies of Farris¹ are of interest. They must await substantiation in other laboratories. Indeed, his tables are open to the suspicion that statistical analysis might reveal their significance to be something less than that which he ascribes to them. Nevertheless, they do serve to illustrate the rather considerable change that may take place in total and differential blood counts without putting anything into the body of the subject to be tested.

Accidentally Farris observed a marked lymphocytosis in a group of healthy medical students. He determined the distribution of the blood cells before and after the disturbing emotional experiences which enter into the life of the average student. He studied the response of the formed blood elements in participants in and spectators of college football games.

Briefly summarized, Farris found that the average lymphocytosis under normal conditions amounts to 24 per cent with a range between 19 and 31 per cent. Just before and during examinations this lymphocyte distribution increased to from 36 to 52 per cent with a maximum range extending up to 65 per cent. Of particular interest is the fact that the relative number of lymphocytes in the blood stream could be apparently correlated with the student's judgment of the difficulty of the examination. For those who would make the work of the freshman medical student easier, it appears that anatomy is the most difficult subject; at least it caused the greatest emotional response as measured by the blood count. For example, in one student the normal leukocyte count was 11,000 with 22 per cent lymphocytes. After he had prepared a thesis the total cells dropped to 9300 but the lymphocytes increased to 29 per cent. Just before this student took the written anatomy examination his total white count showed a further drop to 8700 but the lymphocytes had increased to 58 per cent.

Football players showed an average of 44 per cent lymphocytes in their peripheral blood just before a game. By the time the game was over this figure had dropped to 28 per cent. Even a spectator showed an increase in the percentage of his lympho-

1. Farris, E. J.: Increase in Lymphocytes in Healthy Persons Under Certain Emotional States, *Am. J. Anat.* 63:297, 1938.

cytes from 25 to 39; whether this occurred while his team was winning or losing is not stated.

Farris asserts that this significant change in the blood picture may occur within a period of five minutes and that it may last from half an hour to more than a day after the immediate cause of the excitement has been removed. He mentions a quarterback in whom this emotional lymphocytosis persisted for twenty-four hours; he attributes this phenomenon to the fact that this player relived each experience of the game over and over again during the period that the lymphocytosis was maintained.

On theoretical grounds Farris is inclined to believe that antagonistic activities of the sympathetic and parasympathetic nervous systems with resultant stimulation of the adrenal glands is responsible for the observed phenomena. The secondary effect of the secreted adrenalin is to squeeze out the splenic lymphatic repository and empty into the blood stream a liter of blood in which 65 per cent of the cells are lymphocytes. He made further controlled experiments² upon white rats in order to determine the accuracy of this explanation. While these experiments offer some slight corroborative support to the thesis they are by no means clear cut.

Whatever may be the ultimate outcome of the suggestions of this pioneer work these investigations emphasize a physiological fact of much importance. The response of the body to an emotional situation is far-reaching in its effects upon every part of the organism. For obvious reasons it would seem wise to minimize the occurrence of such emotional disturbances lest repeated insult lead to ultimate injury of the vital organs. Of much more immediate practical importance is the demonstration of a need for caution in interpreting the blood count. The physician must make certain that he is measuring, in those tests which depend upon total and differential blood counts for their diagnostic importance, a vital and not an emotional response.

2. Farris, E. J.: Emotional Lymphocytosis in the Albino Rat, *Am. J. Anat.* 63:325, 1938.

NEWS NOTES

Drs. Millard F. Arbuckle and Brian Blades, St. Louis, were guests of the Southwest Missouri Medical Society at Springfield on December 2.

The St. Joseph Clinical Society will hold its annual spring meeting in St. Joseph on March 28 and 29, 1939. Several guest speakers will appear on the program.

Dr. E. Lee Dorsett, St. Louis, was a guest of the Bond County (Illinois) Medical Society at Greenville Illinois, on December 2, and spoke on "Prolonged Labor."

Dr. Norman Tobias, St. Louis, was a guest of the Perry County (Illinois) Medical Society at DuQuoin, Illinois, on December 2 and spoke on "Diagnosis and Treatment of Common Skin Diseases."

The Hodgen Lecture, sponsored by the St. Louis Surgical Society, will be presented on January 10. Dr. F. T. Collier, Ann Arbor, Professor of Surgery, University of Michigan, will present the address on "Studies on Altered Chemistry in Surgical Patients."

Dr. James B. Costen, St. Louis, will be a guest of the International Post-Graduate Medical Assembly of Southwest Texas at its meeting in San Antonio, Texas, on January 24, 25 and 26. He will speak on "Acute Pharyngeal Infection" at a morning session and at two luncheon sessions on "Optic Neuritis and Paranasal Sinuses" and "The Mandibular Joint Syndrome."

The honor roll, composed of component societies all of whose members paid dues for the current year, was creditably long at the close of 1938. Jackson County Medical Society, for the first time since 1933, reported all members paid for the current year. County societies on the honor roll are Jackson, Chariton, Perry, Ste. Genevieve, Camden, Webster, Montgomery, Dent, Miller, Moniteau, Morgan, Macon, Pulaski, Howard, Andrew, Bates.

Dr. M. Pinson Neal, Columbia, was installed as president of the Mississippi Valley Medical Society at the annual meeting of the society at Quincy, Illinois, in November. Missouri members elected to offices in the society are Dr. Joel W. Hardesty, Hannibal, first vice president; Drs. W. L. Hanson and Q. U. Newell, St. Louis, Edmund Lissack, Concordia, Dan G. Stine, Columbia, and F. E. Sultsman Hannibal, members of the board of directors.

The American Board of Obstetrics and Gynecology will conduct the general oral, clinical and pathological examinations for all candidates, part II examinations (groups A and B) in St. Louis on May 15 and 16 immediately prior to the Annual Session of the American Medical Association. Notice of time and place of these examinations will be forwarded to all candidates well in advance of the dates. Candidates for reexamination must make such request by writing the secretary's office before January 1 for part I and before April 1 for part II. Candidates who are required to take reexamination must do so before the expiration of three years from the date of their first examination. Application for admission to group A (May, 1939) examinations must be on file by March 15. Application blanks and booklets of information may be obtained from the secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh, Pennsylvania.

During the last several weeks the following out-of-state officers of state medical associations have visited the office of the Missouri State Medical Association: Mr. William Burns, Lansing, Michigan, Executive Secretary of the Michigan State Medical Society; Mr. Jack M. Goeffroy, Seattle, Washington, Executive Secretary of the Washington State Medical Association, and Mr. M. B. Smith, Lincoln, Nebraska, Executive Secretary of the Nebraska State Medical Association. The purpose of the visits was discussion of various phases of medical organization, especially the state-wide hospitalization program in Missouri.

Three lectures on tuberculosis were given before classes in science of the Central Missouri State Teachers' College at Warrensburg on December 13, 14 and 15. The lectures were sponsored by the Missouri Tuberculosis Association. Speakers and subjects were Drs. Paul A. Teschner, Assistant Director, Bureau of Health and Public Instruction of the American Medical Association, "The History of Tuberculosis"; Dr. Herbert L. Mantz, Kansas City, "Treatment and Diagnosis of Tuberculosis" and Dr. Jesse E. Douglass, Webb City, "Sociology and Tuberculosis." Approximately 450 students attended the lectures. The Missouri Tuberculosis Association plans to offer a similar series of lectures to other colleges in the state.

As the American Medical Association will hold its 1939 Annual Session in St. Louis, May 15 to 19, and only Fellows of the American Medical Association can attend its sessions, the office of the Missouri State Medical Association has a supply of fellowship application blanks and will forward these blanks to individual members or to societies if they will state the number they will use. The application must be signed by the applicant and certified by the Secretary of the State Association before being sent to the American Medical Association. The fee for fellowship is \$8. The blanks will be returned by the Secretary to the members for transmission to the American Medical Association or if the member will enclose his check for \$8 made payable to the American Medical Association the application will be sent to the American Medical Association.

Dr. Charles H. Neilson, St. Louis, was appointed to the State Board of Health by Gov. Lloyd C. Stark on December 12 for a term ending December 12, 1942. Dr. Neilson has served as Associate Dean of the St. Louis University School of Medicine since 1928 and has been a member of the staff of the university since 1904. He is chief of staff at St. John's Hospital. Dr. Neilson was president of the St. Louis Medical Society in 1928 and has served the Missouri State Medical Association as chairman of the Committee on Postgraduate Work since 1930 and recently was appointed chairman of the Postgraduate

Correlating Committee. Other members of the State Board of Health are Dr. M. B. Clopton, St. Louis; Dr. E. Sanborn Smith, Kirksville; Dr. T. S. Bourke, Kansas City, and Dr. L. P. Forgrave, St. Joseph. Dr. Harry F. Parker, Jefferson City, State Health Commissioner, is secretary of the Board but is not a voting member.

An appropriation for a county health center in St. Louis County has been voted by the county court. The building planned is to cost \$30,000 and the remainder of the money over the \$16,500 appropriated by the court will be sought from the Public Works Administration. The proposed building is to be located west of the main building of the St. Louis County Hospital. The first floor will be on a level with the car tracks and the second floor level with the hospital first floor. There will be eight rooms on the first floor and a large waiting room and consultation rooms on the second floor. The St. Louis County Health Department, now occupying four rooms scattered over the hospital and badly needed by the hospital, will be housed in the new building. Dr. Theodore R. Meyer, Clayton, County Health Commissioner, has been assured of a \$2500 grant by the United States Public Health Service which is sponsoring a health program of which the new health center will be a part.

The following members accepted invitations of Committees to deliver addresses at recent meetings of component societies:

Dr. M. Pinson Neal, Columbia, was a guest of the Bates County Medical Society at Rich Hill on December 5 and spoke on "Pneumonia." During the following morning he spoke before a thousand students in high schools in Adrian, Butler, Rich Hill and Hume on "Appendicitis." On the evening of December 6 Dr. Neal was a guest of the Laclede County Medical Society at Lebanon and spoke on "Pneumonia."

The Six County Medical Society had Drs. Neil S. Moore and O. P. J. Falk, St. Louis, as guests at a meeting in Caruthersville on December 8. Dr. Moore spoke on "Diagnosis and Treatment of Infections of the Kidney" and Dr. Falk discussed "The Modern Treatment of Pneumonia and Its Complications."

On December 13 the Jasper County Medical Society had Dr. G. Wilse Robinson, Kansas City, as a guest. He spoke on "Mental Health."

Drs. John J. Hammond and Hollis Allen, St. Louis, were guests of the Randolph-Monroe County Medical Society at Moberly on December 13. Dr. Hammond spoke on "The Modern Treatment of Pneumonia" and Dr. Allen on "Types and Typing in Pneumonia."

Dr. James R. McVay, Kansas City, was a guest of the Buchanan County Medical Society at St. Joseph on December 15 and discussed "Impressions From the Special Delegates' Meeting."

The American Board of Ophthalmology announces a change in its method of examination of candidates for the Board's certificate. Examinations will be divided into two parts. Candidates whose applications are accepted will be required to pass a written examination which will be held simultaneously in various cities throughout the country approximately sixty days prior to the date of the oral examination. The written examination will include all of the subjects previously covered by the practical and oral examinations. Oral examinations will be held at the time and place of the meeting of the American Medical Association and of the American Academy of Ophthalmology and Oto-Laryngology, and occasionally in connection with other important medical meetings. The oral examination will be on the following subjects: external diseases, ophthalmoscopy, pathology, refraction, ocular motility, practical surgery. Only those candidates who pass the written examination and who have presented satisfactory case reports will be permitted to appear for the oral examination. Examinations scheduled for 1939 are: written, March 15 and August 5; oral, St. Louis, May 15, Chicago, October 6. Applications for permission to taken the written examination March 15 must be filed with the secretary not later than February 15. Application forms and detailed information may be secured from the secretary, Dr. John Green, 6830 Waterman Avenue, St. Louis.

ORGANIZATION ACTIVITIES

COUNCIL MEETING

Jefferson City, December 11, 1938

Abstract of Minutes

The Council of the Missouri State Medical Association met in Jefferson City at the Missouri Hotel on December 11, 1938. Dr. Curtis H. Lohr, Clayton, Chairman, presided. In attendance were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; E. P. Heller, Kansas City; H. L. Kerr, Crane; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston; B. W. Hays, Jackson, President; J. R. McVay, Kansas City, President-Elect; M. B. Simpson, Kansas City, Chairman of Committee on Public Policy; D. A. Robnett, Columbia, Chairman of Committee on Cancer; Carl F. Vohs, St. Louis, Chairman of Committee on Medical Economics; H. L. Mantz, Kansas City, Chairman of Special Committee on Constitution and By-Laws; I. H. Lockwood, Kansas City, President, Jackson County Medical Society; E. L. Johnston, Concordia, member of Committee on Medical Economics; James W. Chapman, Jefferson City, Director, Division of Child Hygiene, State Board of Health, and E. H. Bartelsmeyer, St. Louis, Assistant Secretary.

The minutes of the meeting held on August 31, 1938, were approved as published in THE JOURNAL.

On recommendation of the President the following appointments were approved:

Committee on Public Policy: Drs. M. B. Simpson, Kansas City, Chairman (1941); R. Emmet Kane, St. Louis (1940); James Stewart, Jefferson City (1939).

Committee on Study of Medical Practice Act: Dr. E. L. Spence, Kennett.

Adviser to Woman's Auxiliary: Dr. H. L. Mantz, Kansas City.

Committee on Medical Economics: Dr. Ira H. Lockwood, Kansas City (1939).

Committee on Scientific Work: Dr. J. E. Stowers, Kansas City, appointed chairman.

The Chairman announced the following appointments to special committees of the Council:

Study of Constitution and By-Laws: Drs. H. L. Mantz, Kansas City, Chairman; C. A. W. Zimmermann, Cape Girardeau; A. H. Thornburgh, West Plains; Floyd H. Spencer, St. Joseph, and F. E. Butler, Salem.

Committee on Secretary-Editor: Drs. E. P. Heller, Kansas City, Chairman; R. B. Denny, Creve Coeur, and H. B. Goodrich, Hannibal.

These appointments were confirmed by the Council.

The Chairman appointed the following members to the Committee on Auditing and Appropriations: Drs. H. B. Goodrich, Chairman, A. S. Bristow and E. C. Bohrer.

The report of the Treasurer, Dr. Ralph L. Thompson, St. Louis, was referred to the Committee on Auditing and Appropriations as follows:

STATUS OF FUNDS

General Fund	\$1504.33
Defense Fund	1220.76
Legislative Fund	2614.63
Sinking Fund	4269.00
Total	\$9608.72

The Council selected the dates of April 10, 11 and 12, 1939, for the Excelsior Springs Session.

The General Committee on Arrangements for the Annual Session was appointed as follows: Drs. A. S. Bristow, Chairman; E. P. Heller, and A. J. Campbell.

On recommendation of the General Committee on Arrangements, Dr. David E. Musgrave, Excelsior Springs, was appointed General Chairman of the Local Committee on Arrangements.

Authority was granted the Committee on Scientific Work to invite not more than eight guest speakers for the Annual Session.

The Secretary presented a letter from Dr. H. I. Spector, St. Louis, on behalf of the American College of Chest Physicians suggesting the appointment of a Committee on Control of Tuberculosis to act in cooperation with other existing committees and nonofficial agencies interested in this field of medicine. The appointment of such a committee to consist of three members was approved.

A letter from Dr. Louis H. Jorstad, Chairman,

Missouri State Committee of the American Society for the Control of Cancer, regarding approval of hospitals qualified to give information on sources of adequate cancer treatment was referred to the Committee on Cancer for a report.

A letter from Dr. Harry F. Parker, State Health Commissioner, directed the attention of the Council to the urgent need of securing additional funds for the state laboratories so that an adequate supply of containers or mailing outfits might be procured immediately, and that a more adequate appropriation should be made at the next session of the legislature for the support of state laboratories. The Council was in full accord with the need of such additional appropriation for the current year as well as for replacements and new equipment necessitated by the extra demands made upon the laboratories and urged every effort be made to secure such appropriations.

An appropriation of \$50 was voted the Woman's Auxiliary to assist in the expense incurred as a result of conducting the annual essay contest among the students of high schools of the state and other expenses, such as programs of the annual session.

A letter from Dr. M. J. Bierman, St. Louis, was read and the Secretary was instructed to reply.

The issuance of bulletins from time to time to county medical societies was endorsed.

The report of the Committee on Public Policy was adopted. The Chairman, Dr. M. B. Simpson, announced that the county medical societies would be informed by bulletin of the Association's legislative activities.

Authorization was given the appointment of a special committee of five members to study the situation of alien physicians with respect to how their services might be utilized to the best interest of the public, in what capacities and locations and in what numbers in ratio to the population and the various racial groups.

Dr. Bohrer presented a proposed "Pharmacy and Drug Act" sponsored by the Board of Pharmacy of Missouri. This proposed act was referred to the Committee on Public Policy.

The report of the Committee on Medical Education and Hospitals was adopted as published on page 37 of this issue.

The activity of the Postgraduate Correlating Committee in emphasizing a specific disease or a health problem of paramount public importance in each issue of *THE JOURNAL* was commended.

Dr. D. A. Robnett reported that the Committee on Cancer had offered its cooperation to the Cancer Commission in plans for the administration of the Cancer Hospital as well as in the selection of the personnel that will compose the staff. The report was adopted.

Dr. Carl F. Vohs reported that detailed state wide plans for prepayment medical care are now being studied by the Committee on Medical Economics and would be submitted to the county medical societies for consideration when final conclusions

and recommendations have been reached by the Committee. The report was adopted and the Committee instructed to continue its work.

The report of the Council's Committee on the Study of the Constitution and By-Laws, Dr. H. L. Mantz, Chairman, was accepted and the Committee authorized to expend a sum not to exceed \$50 for legal advice in this connection. The report is published on page 38 of this issue.

On recommendation of the Committee on Auditing and Appropriations the following budget for 1939 was adopted:

Salaries (office and JOURNAL)	\$12,500.00
Printing of THE JOURNAL	6,700.00
Legislation	2,500.00
Defense	1,000.00
Postage	700.00
Postgraduate Instruction	1,200.00
Printing and Stationery	500.00
Traveling Expenses, Secretary and Assistant Secretary	1,100.00
Telephone and Telegraph	650.00
Rent of Office and Light	1,200.00
Meetings:	
Annual Session	
Council and Councilors Expenses	} 3,000.00
Committee Meetings	
General Expense and Miscellaneous	700.00
	<hr/>
	\$31,750.00

On motion the meeting adjourned at 4:40 p. m.

PROPOSED ARTHRITIC HOSPITAL AT EXCELSIOR SPRINGS

The following report of the Committee on Medical Education and Hospitals was presented to the Council and accepted.

The Committee on Medical Education and Hospitals has given careful consideration to the matter of the establishment of a Hospital for Arthritics at Excelsior Springs, proposed by the Clay County Medical Society, the consideration of which was referred to the Committee by action of the Council on August 31, 1938.

A meeting of the Committee was held in St. Louis in the headquarters office of the Association on October 24, 1938, with all members present. Dr. E. J. Baird and Dr. E. C. Robichaux, representing the Clay County Medical Society, were present by invitation.

The Committee had before it the resolution adopted by the Clay County Medical Society together with a memorandum entitled "Presentation of Facts Relating to the Establishment of a Hospital for Arthritics at Excelsior Springs" prepared by the Clay County Medical Society on August 30, 1938, and submitted to the Council at its meeting on August 31, 1938. The resolution follows:

WHEREAS, There are many citizens of the state suffering with arthritis in its various forms and in varying degrees of disability (estimated to be in excess of four hundred thousand), and

WHEREAS, This is a progressively disabling condition rendering many of its victims dependent on public charity, and especially rendering them medically indigent, and

WHEREAS, No entirely adequate treatment for this affliction is known, and

WHEREAS, There is, in this county, at Excelsior Springs, a spa which for fifty years has treated these sufferers with more than ordinary success, and

WHEREAS, The federal government has shown faith in this spa by spending, in conjunction with the city, a million dollars for the proper housing and application of this group of

waters in the treatment of ehronic ailments, including arthritis, now, therefore be it

Resolved, That the Council of the Missouri State Medical Association be, and hereby is, requested to confer with the Governor and State Legislaturc, asking for an appropriation adequate for the construction of a hospital at Excelsior Springs for research in, and the treatment of indigent arthrities.

The conclusion as submitted in the memorandum reads as follows:

For sixty years Exeelsior Springs has devoted much of its medical energy to the alleviation of arthritis and thousands of friends from all states contiguous to Missouri, will vouch for her success in that field. We submit the reflection that the establishment of a hospital in Excelsior Springs for research in the treatment of arthritis would not only greatly reduce human suffering in that field in this state, but would materially advance the medical and economic progress of the State of Missouri.

It was further pointed out to the Committee by Drs. Baird and Robichaux that

1. The establishment of an arthritic hospital would enable research to be carried on and thus advance medical science in the treatment of this disease.

2. It would be established for the exclusive care of the indigent sick with proper safeguards for limiting the facilities to the indigent.

3. It would enable instruction to be given in the institution as to proper methods of home care to be followed by patients subsequent to leaving the hospital.

4. A 200 bed capacity hospital is recommended.

5. It would relieve the medical profession of treatment now being rendered to some of their indigent arthritic patients.

6. The establishing of an arthritic hospital would attract the attention of pay patients who now go abroad for similar treatment to spas in this country.

The Committee is appreciative of the fine spirit of cooperation of the representatives of Clay County Medical Society in presenting other data, both scientific and factual. Research in the treatment of arthritis was emphasized. The Committee appreciates the desirability of research in this field of medicine but feels that from a practical point of view, the establishing of an arthritic hospital at Excelsior Springs would not for the purpose of research attract a sufficient number of full time physicians to constitute a competent staff. The cost of maintaining such a staff, in the event it were possible to secure a competent one, would be far beyond what should be necessary if the hospital were located in a city where a competent staff could be secured at less expense. A 200 bed hospital is proposed. The average time for hospitalization of an arthritic patient in such a hospital would necessarily be longer than hospitalization of other cases, perhaps two to three months for each patient. Without data compiled by a competent survey of our state as to the number of arthritic patients requiring hospitalization, the Committee cannot assume that a hospital of 200 bed capacity would be sufficient to meet the need, neither can it assume a hospital of 2000 bed capacity would suffice. The definite need must first be ascertained. It was further pointed out to the Committee that in order to establish such a hospital in Excelsior Springs it was proposed that a bill be presented to our state legislature which meets in January, 1939, which would establish the hospital, a board for its government, provide rules and regulations for the admission of indigent patients and an appropriation for building and maintenance, probably matched by federal funds.

In this connection the Committee has noted the attitude of the medical profession expressed at the Special Session of the House of Delegates of the American Medical Association in Chicago, September, 1938, toward the recommendations of the National Health Conference wherein a ten year program for the establishment of hospitals comprising 360,000 beds in general, tuberculosis and mental hospitals in rural and urban areas was definitely recommended. The House of Delegates "fa-

vored the expansion of general hospital facilities where need exists. The hospital situation would indicate that there is at present a greater need for the use of existing hospital facilities than for additional hospitals. It recommended the approval of the recommendation of the Technical Committee of the National Health Conference stressing the use of existing hospital facilities. The stability and efficiency of many existing church and voluntary hospitals could be assured by the payment to them of the costs of the necessary hospitalization of the medically indigent."

Your Committee therefore believes in view of the report of the National Health Conference proposing legislation for the care of the medically indigent generally, the attitude of the medical profession as expressed by the House of Delegates and the probability of the introduction in Congress of a bill, which if adopted will influence local state legislation along definite lines, that it would be most inadvisable to propose the legislation recommended by the Clay County Medical Society at the present session of our state legislature.

Your Committee is in sympathy with the movement sponsored by the Clay County Medical Society and its humanitarian desire to afford additional facilities for the relief of the indigent arthritic patients but cannot recommend the establishment of a state arthritic hospital in Excelsior Springs or elsewhere in our state in view of the development of a general federal program for the care of the indigent sick or until the trend of such legislative program has been definitely established. Your Committee gratefully acknowledges its appreciation of the helpful cooperation of Drs. Baird and Robichaux and is most willing to continue its pleasant relationship with the representatives of Clay County Medical Society in the hope that conclusions can be reached after the definite need for a state arthritic hospital has been established and the general program for the care of the indigent sick has been adopted by our federal and state governments.

Committee

ROSS A. WOOLSEY, M.D.,

H. W. CARLE, M.D.,

L. W. DEAN, M.D., Chairman.

CONSTITUTION AND BY-LAWS

Report of Special Council Committee

The Committee met November 13 at West Plains, with Dr. H. L. Mantz, Kansas City, Chairman, presiding. The following resolution concerning the method of election of Councilors as provided in Section 2, Article IX, of the Constitution was adopted as changed by the Committee. The changes made and additions are placed in parenthesis.

The resolution outlining method of election of Councilors as provided for in Section 2, Article IX, of the Constitution follows:

WHEREAS, Said section provides "The delegates present from each Councilor District shall meet on the morning of the third day of the Annual Session and elect the Councilor from that District. In the event of death, resignation or removal of any Councilor, the Council may appoint a successor to serve until the vacancy is filled at the next Annual Session. All of the officers shall serve until their successors are elected and installed, and

WHEREAS, A definite method of procedure should be outlined in order that all elections be held uniformly, therefore be it

Resolved, By the House of Delegates that the following procedure prevail:

At the close of the session on the first day the Secretary shall prepare lists of the delegates registered from

the various Councilor Districts in which vacancies are to be filled, which shall be posted in the assembly hall and a copy given to the Councilors whose terms expire.

The Councilors in collaboration with the delegates shall determine upon the time and place of the meeting to be held on the morning of the third day of the Annual Session. The Secretary after being notified of such meeting shall cause a notice of the meeting to be posted in the assembly hall (and make an announcement of the meeting in the House of Delegates or scientific assembly). The Councilor shall act as temporary chairman of the meeting of the delegates from each respective Councilor District. In the event a Councilor is absent the President shall designate a delegate to perform these duties. The first order of business shall be to elect from among the delegates a permanent chairman and a secretary (after which the Councilor shall retire from this meeting). The chairman shall state the meeting is called for the purpose of electing a Councilor to serve for a period of two years and that each candidate must reside or practice in the District. Nominations shall be received from the floor. The election shall be by (secret) ballot and a majority of the votes cast shall be necessary to elect. In case no nominees receive a majority on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast when he shall be declared elected. The election shall be certified to the House of Delegates by the chairman and secretary on a form to be prescribed.

If no election has been certified from a Councilor District the incumbent shall serve until the next Annual Session.

In the event a delegate or his authorized alternate has not registered at the Session in time to be included on the list prepared and posted by the Secretary, he may attend the meeting on the morning of the third day of the Session and cast his vote for the election of a Councilor, provided he has registered at the Session and his delegate's credentials bear the approval of the Committee on Credentials, and be it further

Resolved, That this resolution meets with the approval of the Council and is respectfully submitted to the House of Delegates at the 1939 Annual Session.

To the Secretary of the Missouri State Medical Association:
This is to certify that at a meeting of the delegates of the Councilor District held on at a. m. of was duly elected Councilor for a period of two years in accordance with Section 2, Article IX, of the Constitution with the resolution adopted by the House of Delegates outlining the method of election. delegates were present.

....., Chairman
....., Secretary
....., Mo., Date.....

The Committee favors amending the By-Laws to change the present conflict between our Constitution and By-Laws and those of the American Medical Association but does not desire to offer a specific change pending more complete revision. The Committee took action in regard to the resolution on the election of Councilors as offered by Dr. Lee D. Cady. The Committee feels the election of Councilors by a society as a whole could be construed as solicitation for the election to the office. The Committee also felt that it would not be to the best interest of the society to have the Councilor elected by the membership at large of the two large medical societies. The Committee feels that the entire Constitution and By-Laws should be carefully rewritten and revised and that piecemeal efforts are unsatisfactory. The Committee requests that the Council authorize the Committee to secure legal

advice so that this revision may be made in accordance with the technical difficulties that seem to confront the practice of medicine.

MISSOURI NEEDS A BASIC SCIENCE LAW

The Missouri State Medical Association will submit to the January 1939 General Assembly of Missouri a fair and impartial basic science act which would require a uniform standard of training for all who wish to practice the healing art. Its exceptions prevent infringements on the rights of any healers already licensed. The act will not apply to dentists, pharmacists, optometrists, embalmers, barbers, nurses, opticians, chiropodists, cosmetologists, midwives or veterinarians practicing within the limits of their respective callings nor to persons whose ministrations to the sick and afflicted are confined to prayer without the use of material remedies.

The human body and the diseases to which it is subjected require a uniform knowledge of fundamentals or basic sciences regardless of the methods of treatment. These basic sciences are: (1) anatomy, (2) physiology, (3) chemistry, (4) bacteriology and (5) pathology.

1. Anatomy and study of the normal structure of the human body is essential in order that the practitioner may recognize the abnormal conditions to correct intelligently such abnormalities by any method.

2. Physiology, the study of the normal functions of the organs of the body, is essential, otherwise one cannot know whether or not the organism is functioning normally; without such knowledge one cannot intelligently treat diseased conditions.

3. Chemistry is essential in order that the practitioner may be familiar with the chemical composition or normal structures and fluids of the body as well as understand the composition of foods and medical substances.

4. Bacteriology is the study of germs which produce many infectious diseases such as tuberculosis, diphtheria, scarlet fever, whooping cough, pneumonia and syphilis. It is essential in order that one may successfully combat these dreaded diseases.

5. Pathology, the study of structural change in the body caused by disease, is essential in order to recognize and cope with disease.

A knowledge of these basic sciences is essential for anyone who practices healing.

The welfare of the community is protected only when its government establishes adequate qualifications for those who hold themselves out as competent to maintain the health of the people. A basic science law is regarded as the best modern means of determining these qualifications impartially.

A license to practice the healing art is taken by the public as the state's stamp of approval on the practitioner's qualifications. The state should guarantee that fundamental education underlies that license.

The proposed basic science act deals alike with all schools of healing and would elevate the standards of each. Each school would be wholly independent and could regulate its own professional requirements.

The State Board of Examiners in the Basic Sciences (five members) would be appointed by the Governor from the faculties of the University of Missouri, a state teachers' college of Missouri or an accredited high school. No member of the board would be actively engaged in the practice of the healing art and not more than one member would be appointed from any one university, college or school. The fee would be \$15.

The proposed basic science act would permit each school of healing to have its own examining board and at the same time would guarantee a

uniform minimum standard of education to all healers.

Basic science laws have been adopted by the legislatures of Arkansas, Arizona, Colorado, Connecticut, Iowa, Kansas, Michigan, Minnesota, Nebraska, Oregon, Washington, Wisconsin, and has been adopted by the Congress for the District of Columbia. It has raised standards in all branches of the healing art where it is in force. It has proved its worth.

A basic science law is progressive legislation, designed to meet modern needs. Missouri should adopt it.

Committee on Public Policy

R. EMMET KANE, M.D.,

JAMES STEWART, M.D.,

MORRIS B. SIMPSON, M.D., Chairman.

AN ACT

Prohibiting the taking of examinations for license or the granting of a license to practice the healing art or any branch thereof except after examination by a State Board of Examiners in the basic sciences, defining terms used, providing for the establishment, appointment, organization and powers of a State Board of Examiners in such basic sciences, prescribing the duties and qualifications of the members of such Board, the fees for examining and certifying applicants for examination in the basic sciences, prescribing qualifications for applicants for examination in such sciences, fixing the percentages to be attained by applicants in examinations on such sciences, providing for certificates by reciprocity to applicants having been previously examined by other state boards, prohibiting the issuance of licenses to practice the healing art or any branch thereof except upon prior examination by the Board established by this Act; providing for the revocation of certificates issued by said Board because of mistake or fraudulent misrepresentation of fact or because of revocation of licenses to practice the healing art; establishing procedure for revoking certificates and review thereof by certiorari; providing for the revocation of licenses issued contrary to the provisions of this Act; providing for the revocation of licenses to practice the healing art upon the revocation of a certificate of eligibility by the Board of basic sciences, making it a misdemeanor to obtain a basic science certificate by dishonest or fraudulent means, or to forge, counterfeit or fraudulently alter any such certificate, and providing the punishment therefor.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF MISSOURI AS FOLLOWS:

Section 1. No person shall be permitted to take an examination for a license to practice the healing art or any branch thereof as herein defined or be granted any such license unless such person has presented to the Board or officer empowered to issue a license to such person to so practice a certificate issued by the State Board of Examiners in the basic sciences certifying that the applicant for such license is qualified and has a satisfactory knowledge of the basic sciences as herein defined.

Section 2. The terms "healing art," "practice of the healing art or any branch thereof," "art of healing" and "healing" as used in this Act are hereby defined and shall be construed to mean and include any system, treatment, operation, prescription, diagnosis or practice for the ascertainment, cure, relief, palliation, adjustment or correction of any human disease, ailment, deformity, injury or unhealthy or abnormal physical or mental condition; provided that this Act shall not be construed as applying to dentists, pharmacists, optometrists, embalmers, barbers, nurses, opticians, chiropodists, cosmetologists, midwives and veterinarians practicing within the limits of their respective callings, nor to persons whose ministrations to the sick or afflicted are confined to prayer without the use of material remedies, nor to persons specifically permitted by law to practice without a license who practice each within the limits of the privilege thus granted to them, nor shall this Act apply to

persons duly licensed to practice the healing art or any branch thereof in this state under and pursuant to any license granted to any such person to the effective date of this Act. The term "basic sciences" as used in this Act shall mean and be construed to mean and include anatomy, physiology, chemistry, bacteriology and pathology. Wherever used in this Act the word "Board" shall, unless the context definitely shows otherwise, mean the State Board of Examiners in the basic sciences appointed pursuant to Section 3 of this Act.

Section 3. Within thirty (30) days after this Act shall take effect the Governor shall appoint a State Board of Examiners in the basic sciences to consist of five (5) members. The members of said Board shall be appointed as follows: One (1) member for a term of one (1) year, one (1) member for a term of two (2) years, one (1) member for a term of three (3) years, one (1) member for a term of four (4) years and one (1) member for a term of five (5) years from the dates of their respective appointments. On the expiration of the term for which each of such members was appointed the Governor shall appoint a successor to such member for a term of five (5) years. Upon the death, resignation or removal by the Governor of any member of said Board the Governor shall fill the vacancy so created by the appointment of a member for the unexpired portion of the term for which such member was appointed. Every member appointed to such Board shall serve for the term for which he was appointed and thereafter until his successor be appointed and qualified. The members of said Board shall be selected because of their knowledge of said basic sciences and each member shall

be a professor or an assistant or associate professor on the faculty of the University of Missouri, a state teachers' college of Missouri or a high school accredited as such by the State Superintendent of Public Schools. No member of the Board shall be actively engaged in the practice of the healing art or any branch thereof. Not more than one (1) member of the Board shall be appointed from any one university, college or high school. Each member shall have resided in this state for not less than one (1) year next preceding his appointment.

Section 4. The said Board shall organize as soon as practicable after the appointment of its members. The first meeting shall be upon call issued by the member appointed for the term of five (5) years, or upon a call signed by any three (3) members appointed. The Board shall elect a President and a Vice President from among its members and shall appoint a Secretary and a Treasurer, who need not be members of the Board. The same person may be appointed Secretary and Treasurer. All of said officers shall hold their respective offices for the term of one (1) year and until their successors are elected and qualify. The Board shall have authority to adopt a seal and from time to time to make such rules and regulations not inconsistent with the Constitution of this state or with this law as shall be necessary and expedient to carry this Act into effect. The Board shall keep a record of its proceedings and a register of all applicants for certificates and of certificates issued, which records and register shall be prima facie evidence of all matters contained therein. The Board shall have power to incur such expenses as may be necessary to carry out the provisions of this Act and may make such expenditures as shall be necessary for rent not furnished in the State Office Building or Capitol and for equipment, stationery and supplies. Any member of the Board and the Secretary thereof shall have power to administer oaths in connection with proceedings before said Board, and the examination of applicants and other matters incidental thereto. The treasurer of the Board shall give to the State Treasurer of Missouri bond in the penal sum of five thousand dollars (\$5,000.00) in favor of the State of Missouri, with sufficient sureties to be approved by the State Treasurer for the faithful discharge of his duties. The Board may employ and fix the compensation of its Secretary and Treasurer and such other assistants or employees as may be necessary to carry out the provisions of this Act. A majority of the Board shall constitute a quorum for the transaction of business. The Board shall meet at such times and places as shall be designated by the Board and shall conduct at least two (2) examinations in the basic sciences each year, at such times and places as it shall deem best. Each member of the Board shall be paid the necessary traveling and other expenses actually incurred in the discharge of duties under this Act and shall receive as compensation the sum of ten dollars (\$10.00) per day for each day actually engaged in the discharge of such duties, including compensation for the time spent in traveling to and from the place of conducting any examination and for a reasonable number of days for the preparation of examination questions and the grading of papers.

Section 5. Any person desiring to practice the healing art or any branch thereof in this state shall make application to the Board of Examiners in the basic sciences for a certificate of eligibility to take the examinations in the basic sciences, or to receive a certificate of eligibility issued because of an examination held in another state as provided in Section 8 of this Act, and such application shall be accompanied by the fee to be paid to the Treasurer of said Board in the amount prescribed by this Act. The fee for examination by said Board shall be fifteen dollars (\$15.00) to be paid upon an initial application, or for a re-examination after the expiration of twelve (12) months from the date of any original prior application. The fee for re-examination within twelve

(12) months from the date of the original application shall be ten dollars (\$10.00). The fee for examining the credentials of an applicant who applies for reciprocity under the provisions of Section 8 of this Act and for examining the requirements and standards of the state of original examination and the results of such original examination and the issuance of a certificate of eligibility to such applicant shall be twenty-five dollars (\$25.00). All fees received from applicants for certificates of eligibility shall be paid into the State Treasury and be held by the State Treasurer as a separate fund, to be disbursed only in payment of expenses of maintaining said Board of Examiners in the basic sciences and for the purposes of this Act, and said fund is hereby appropriated for said purposes. The State Auditor shall issue his warrant on the State Treasurer for payment of funds and expenses of the said Board upon the certificate of the President and Secretary of said Board.

Section 6. No certificate shall be issued by the Board to any person unless the applicant therefor shall submit to the Board evidence satisfactory to the Board: (1) That such person is of good moral character; (2) that before such person began the study of the healing art such person was graduated from and by a high school accredited by the Missouri State Superintendent of Public Schools, or that the applicant possesses educational qualifications equivalent to those required for graduation from such an accredited high school; and (3) except as herein otherwise specifically provided, that such person has a comprehensive knowledge of the basic sciences as shown by the passage of an examination given by the Board as in this Act required.

Section 7. Every such applicant as otherwise specifically provided by this Act shall be thoroughly examined to determine the knowledge, ability and skill of the applicant in the basic sciences. Such examination shall be conducted in writing but may be supplemented by oral examinations and by examination in the laboratory, dissecting room and dispensary. No such applicant shall receive a certificate of eligibility in the basic sciences nor be deemed to have a comprehensive knowledge of the basic sciences unless such person shall attain an average grade of at least seventy-five per cent (75%) in all subjects on which the applicant shall be examined, nor unless such applicant shall attain a grade of at least sixty per cent (60%) on each subject upon which the applicant is examined, provided, however, that if such applicant attain a grade of less than sixty per cent (60%) in one subject but attain an average of seventy-five per cent (75%) in the remaining subjects, such person shall be entitled to re-examination at the time and place of the next examination held for applicants, and shall be required to be re-examined only in the subject in which such applicant failed to receive a grade of at least sixty per cent (60%). Any applicant who upon examination shall attain a grade of less than sixty per cent (60%) in more than one subject upon which such applicant is examined shall not be re-examined unless such person shall present proof satisfactory to the Board that the applicant had made additional studies in the basic sciences sufficient to justify re-examination. No applicant shall be examined or re-examined until such applicant has paid the fee for such examination or re-examination as provided by this Act.

Section 8. The Board may in its discretion waive the examination required by this Act when proof satisfactory to the Board is submitted showing (1) that the applicant has passed in another state or territory of the United States or the District of Columbia an examination in the basic sciences given by and before a board of examiners in the basic sciences, by whatsoever name it may be known, or given by or before a state board authorized to issue licenses to practice the healing art; (2) that the state in which such examination was given required standards at the time of such examination, in the opinion of the Board of Examiners in the basic

sciences of this state, not less than those required by this Act; (3) that like exemption from an examination in the basic sciences is granted by such state to persons holding certificates of eligibility issued under the provisions of this Act, and (4) the applicant shall pay the fee required by Section 5 of this Act.

Section 9. Any license hereafter issued by any board, body or bureau of this state to any person to practice the healing art or any branch thereof contrary to this Act shall be void. Any basic science certificate of eligibility issued contrary to the provisions of this Act shall be void. It shall be the duty of any board, bureau or body which has issued a license to practice the healing art or any branch thereof from and after the effective date of this Act, without having first required a certificate of eligibility issued by the Board of Examiners in the basic sciences, as provided in this Act, to revoke and cancel such license. The certificate of eligibility issued by the Board of Examiners in the basic sciences to any person shall automatically be revoked by the revocation of the license of such persons to practice the healing art or any branch thereof. The State Board of Examiners in the basic sciences may revoke any certificate of eligibility issued by the said Board if such certificate was granted upon mistake of a material fact or facts or by reason of fraudulent misrepresentation of fact by the applicant, and, in the event of such revocation, any license to practice the healing art or any branch thereof granted by virtue of such certificate of eligibility shall be automatically revoked. The State Board of Examiners in the basic sciences shall give to any person whose certificate it proposes to revoke a hearing either at the office of the Board in Jefferson City, Missouri, or at some convenient place in the county in which such person shall reside and the Board shall cause such person to be notified by registered mail, postage prepaid, of the time and place of such hearing, or shall cause such notice to be served upon such person in the same manner that process is required to be served in civil causes. Such notice shall be given to such person at least fifteen (15) days before the time of such hearing and shall state the time and place of such hearing. On such hearing evidence shall be submitted either by witnesses or by depositions or by affidavit. The Board shall cause the testimony of witnesses appearing before it to be taken in shorthand and transcribed and the transcript filed with the other papers in the case. Any person whose certificate is so revoked shall have the right to have the revocation proceedings reviewed upon certiorari to the circuit court of the county in which such hearing was held, but such circuit court shall not hear the cause de novo but shall review the revocation upon the record made before the Board.

Section 10. Any person who shall obtain or procure or attempt to obtain or procure a certificate of eligibility under the provisions of this Act by false or untrue statements contained in the application of such person to the State Board of Examiners in the basic sciences or to any member thereof, or by other fraud or misrepresentation, or who shall forge, counterfeit or alter any certificate of eligibility issued or authorized to be issued under the provisions of this Act, or who shall practice the healing art or any branch thereof without first having obtained the certificate of eligibility required under the terms of this Act, shall be guilty of a misdemeanor and shall be punished by imprisonment in the county jail for a term of not more than twelve (12) months, or by a fine of not more than five hundred dollars (\$500.00), or by both such fine and imprisonment. Each day upon which this section shall be violated shall be and constitute a separate offense and shall be punishable in like manner with each other such offense.

Section 11. Nothing in this Act shall be construed to repeal or lessen any statutory provision or regulation of any licensing board or bureau in force at the time of the passage of this Act with reference to the requirements governing the issuance of licenses to prac-

tice the healing art or any branch thereof. Any board authorized to issue licenses to practice the healing art or any branch thereof may in its discretion give additional examinations in the basic sciences or may accept the certificate of eligibility issued by the Board of Examiners in the basic sciences of this state in lieu of such additional examinations, but no person shall be so examined unless such person shall have filed with the Examining Board the certificate of eligibility required under the terms of this Act.

Section 12. If any section, subsection, clause, sentence or phrase of this Act is for any reason held to be unconstitutional or invalid such decision shall not affect the remaining portions of this Act, and the General Assembly hereby declares that it would have passed the remaining portions of this Act irrespective of the fact that any such section, subsection, clause, sentence or phrase of this Act be declared unconstitutional or invalid.

Section 13. All Acts and parts of Acts contrary to the provisions of this Act or inconsistent therewith are hereby repealed.

LECTURES ON PEDIATRICS AND OBSTETRICS

Lectures to the laity on pediatrics and obstetrics being given under the auspices of the State Board of Health, the Committee on Maternal Welfare of the State Association and the Extension Service of the University of Missouri College of Agriculture are scheduled as follow for January and February:

PEDIATRICS		
<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>
January		
3	Gasconade and Maries	C. E. Klingner, Owensville Carl Durtschi, Vienna
4	Osage	Don Spalding, Linn
5	Cole	R. W. Kallenbach, Jefferson City
6	Medical Group	
9	Miller	W. D. House, Tuscumbia
10	Moniteau	Fowler Young, California
11-12	Morgan	H. G. Crawford, Versailles
13	Medical Group	
16	Benton	O. V. Singleton, Warsaw
17	Hickory	Ray S. Graham, Hermitage
18	St. Clair	Virgil Sapp, Osceola
19	Henry	Lloyd Redd, Clinton
20	Medical Group	
23-24	Bates	John Burkeholder, Butler
25-26	Vernon	L. W. Doran, Nevada
27	Medical Group	
30-31	Barton	Merle Vaughan, Lamar

<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>
February		
1-2	Jasper	Carl Lewis, Carthage
3	Medical Group	
6-7	Lawrence	John W. Woodward, Mt. Vernon
8	Dade	E. H. Hess, Greenfield
9	Cedar	W. E. Yates, Stockton
10	Medical Group	
13	Polk and Dallas	R. C. Rubottom, Boli- var, and T. A. Black- lock, Buffalo
14-15	Greene	C. C. Keller, Springfield
16	Webster	Vance Henry, Marshfield
17	Medical Group	
20	Laclede	Hensley Hall, Lebanon
21	Camden	J. N. Holt, Camdenton
22-23	Pulaski	George Hardy, Waynesville
24	Medical Group	
27	Phelps	Harold Canfield, Rolla
28	Dent	Clarence McGill, Salem

OBSTETRICS

<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>
January		
3	Shelby	J. B. Carmichael, Shelbyville
4-5	Monroe	Raymond King, Paris
6	Medical Group	
9-10	Randolph	Glenn C. Pittenger, Huntsville
11-12	Macon	Garrett M. Barnhart, Macon
13	Medical Group	
16-17	Linn	J. Robert Hall, Linneus
18-19	Chariton	John H. Rush, Keytesville
20	Medical Group	
23-24	Carroll	Albert Dyer, Carrollton
25-26	Livingston	Eugene Lee, Chillicothe
27	Medical Group	
30-31	Lafayette	Roy I. Coplen, Higginsville
February		
1-2	Johnson	Virgil Burk, Warrensburg
3	Medical Group	
6-7	Bates	John Burkeholder, Butler

<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>
8-9	Vernon	L. W. Doran, Nevada
10	Medical Group	
13-14	Cass	Horace M. Hunt, Harrisonville
15-16	Jackson	E. M. Woods, Independence
17	Medical Group	
20-21	Ray	Ira R. Thornton, Richmond
22-23	Clay	R. J. Laughlin, Liberty
24	Medical Group	
27-28	Platte	L. J. Wormington, Platte City

Secretaries of these counties are urged to contact the Extension Agent in his county and make arrangements for these lectures.

ATTITUDE OF THE HOSPITAL ASSOCIATIONS TO THE NATIONAL HEALTH PROGRAM

Soon after the meeting of the special committee appointed by the House of Delegates of the American Medical Association with the Interdepartmental Committee, representatives of the three major hospital associations held a similar meeting to coordinate health and welfare activities in so far as they were concerned. The common note sounded by the House of Delegates of the American Medical Association to preserve and to augment the present high standards of medical and hospital care predominated the discussions and final conclusions of this later meeting. The statement submitted by the hospital associations reads as follows:

The representatives here assembled of the American, the American Protestant and the Catholic Hospital Associations of the United States together with a selected group of their technical advisers express to you, Mr. Chairman, their grateful appreciation for this opportunity to voice their opinions and to present to you the resolutions of their respective associations on the National Health Program. The hugeness of the undertaking and its probable significance for the future of our nation imply moral responsibilities not only for our hospital associations but for the government as well to bring to bear upon the formulation of a National Program all the acumen and the combined experience of those who for a century and a half have carried, many decades without government support, the responsibility for the safeguarding of the nation's health. The three hospital associations, therefore, thank you for this opportunity and we hope that the mutual understanding that may be developed between the social and the private agencies, dealing with national health may result in a program in which cooperation between these two groups of agencies may prove to be the dominant and the controlling characteristic.

In saying this the three hospital associations are greatly encouraged by a recent pronouncement of President Roosevelt himself. In his address on "The Mobilization for Human Needs" he calls attention to the fact that "There are some persons who say that the need for voluntary private agencies has decreased. They say that the government—federal, state and local—has moved in and taken over part of the jurisdiction of the private agencies. Such persons talk as if the scope of

voluntary action and of mutual aid had been limited, or even eliminated.

"Private community effort is not contradictory in principle to government effort, whether local, state or national. All of these are needed to make up the partnership upon which our nation is founded. The scope of voluntary action cannot be limited because the very desire to help the less fortunate is a basic and spontaneous human urge that knows no boundary lines. It is an urge that advances civilization. I like to think it is a national characteristic."

The three hospital associations are also encouraged in their attitude by the fact that in the documents submitted to the National Health Conference on July 18 and 19 of this year, mention is occasionally made of the anticipated cooperation between the governmental and the private agencies. Furthermore, repeated expressions by various individuals close to the interests and activities of the Interdepartmental Committee have from time to time expressed the necessity of maintaining the relationship through which the present level of excellence in the national health has been achieved and through an intensification, of which no doubt especially if the private agencies receive the increased support and sympathetic understanding of the government, still greater results might be confidently expected. All three hospital associations are convinced that the path of understanding which has been historically developed and which has been found pragmatically so efficient is capable of indefinite expansion to the progressive benefit of all of those interests which are involved in national health.

It is not our place at this moment to urge upon those who are to formulate our legislation the motives which we believe should urge them to recommend any particular pattern but it is our place here to stress what we believe to be the important, guiding and controlling principle in any future development, namely, the principle that whatever programs and procedures are drafted, they should be such that in the words of a particularly valuable and experienced member of our committee, "they may alter to the least necessary extent the existing plan of cooperative understanding between public and private agencies." This principle does not imply that the representatives of the hospital associations have blinded themselves to shortcomings in our present system. We may well admit that on the part of the voluntary agencies there should be developed greater coordination, continuity and unity of effort; that on the part of the governmental agencies there should be extension of function into hitherto unaffected geographical, psychological and social areas; and with reference to the mutual cooperation of the two that there should be more careful and effective planning, more extensive mutual subsidy of effort. Wherever possible the governmental agencies should place at the disposal of the private agencies those resources which are required to accomplish the work which the private agencies could perform more effectively than the governmental agencies.

All of this we frankly admit. There still remains, however, the outstanding fact that consistent with American trends, the government has allowed the private agencies the fullest exercise of their initiative and their prudent zeal in the promotion of ever so many of our national responsibilities. Now that we welcome the increased interest of the federal government as well as of the state and local governments inspired by the federal government in the health problems of the nation, we are convinced that this increased and stimulated interest should manifest itself in deeper insight into and a far reaching influence toward the relationships between the private and the public agencies. It seems unnecessary to point out that this thought could be indefinitely amplified if time and the occasion permitted.

In pursuance of this fundamental principle our three

associations now turn to an expression of opinion on various elements of the National Health Program. With reference to the extension of public health services our three associations are in accord concerning the need of such extension. If any further words are to be added they would necessarily take the form of a word of caution. It is certainly unnecessary to state before a group such as the Interdepartmental Committee, that administrative procedures must follow available scientific achievements. The danger must be recognized that in the formulation of a National Program administrative prescription may easily outrun the present level of scientific knowledge and may assume scientific progress in areas where a cautious scientist himself might hesitate to counsel a social program which applies a scarcely well formulated scientific position. This caution is all the more needed when in one's enthusiasm concerning the achievements of public health work one is apt to forget that the different medical and disease conditions require different administrative procedures if scientific knowledge is to be applied to their control and prevention.

A further consideration which we should like to bring before the Interdepartmental Committee is the recommendation that in the extension of public health facilities full recognition be given to the work of the private agencies in conformity with the principle already discussed. In the pronouncement of the Interdepartmental Committee stress is laid upon the fact, for example, that the outpatient departments and clinics of the country are at present inadequate to cope with the national needs. This we readily admit. On the other hand, somewhere in public thinking there must be an emphasis upon the fact that after all these outpatient departments and clinics the country over have achieved literally enormous results which if they were now discontinued or reduced in their effectiveness, would throw upon the government resources a strain which could not be justified in view of the enormous sums of money already invested for the purpose of serving the public.

Similar comments might well be made with reference to the organizations which through their educational, social and medical influence have promoted health consciousness in the American mind and have in specific fields achieved a truly phenomenal success.

With reference to the enlargement of grants under the Social Security Act for the care of the sick unemployed, child welfare, maternity welfare and the care of crippled children, the three associations again are in complete accord in giving their whole-hearted approval. They would heartily subscribe, however, an addition to the financial allotments for the care of the chronically ill in the old age group and would recommend the addition of the chronically ill of all ages as beneficiaries under this Act if its provisions can be extended to this deserving group.

With reference to the increase in the number of hospitals, the representatives of our three associations recommend a measure of prudent reserve no less than of effective activity. On the one hand, it is clear that there is need of increased hospital facilities in certain areas of the country. On the other hand, it is equally clear that at times considerations other than those of a local need have entered into the erection of governmental institutions which once they have been erected have not only consumed enormous sums in their operation but have also tended toward weakening the effective operation of existing institutions. It is strongly recommended by all three associations that the extension of facilities should take place only after an impartial survey of local needs.

This raises the whole question of the significance of surveys of local needs and of the technics to be employed in this survey. The question is too large a one to enter into here, nevertheless our three associations desire to point out at least this at the present moment, that in making the survey not only professional com-

petence of the surveyors be considered but also the necessity of adequate representation of the parties at interest in formulating the recommendations based upon a survey. Various groups have suggested a diversity of plan to insure such representation. This might be done through a national agency created by the government or again, it might be left to local agencies responsible to the government. But it certainly seems to be the part of wisdom to authorize the expenditure of public funds only when the need for which they are to be expended has been frankly ascertained and when the multiplication of facilities does not operate against the continued employment of facilities already created.

With reference to the extension of the special hospital system, that is of hospitals for tuberculosis, for the nervous and mental patients and so forth, the three associations endorse the program of the Interdepartmental Committee, again, however, subject to the restriction that such extensions as might be contemplated be made only after a carefully elaborated survey.

The problem of the care of the indigent and of the medically indigent is, needless to say, the focal point of interest in this question. It must be pointed out that one of the chief reasons for the existence of private hospitals is the fact that they give care to the indigent and to the medically indigent. This is the basis upon which the private institution appeals for public voluntary support. It is for this reason, furthermore, that the American government, in all its various subdivisions, has recognized the validity of the contention that these hospitals are to be held immune from certain tax obligations. It is recognized furthermore that the institutional attitudes developed through the care of the indigent have been a valuable resource by reason of which these institutions have been able to do so much for the national health. It is through these institutions that philanthropy and charity have found their most effective expression. All of these gains cannot but be considered national assets of the first importance. Our three associations desire that these assets should be retained undiminished in their magnitude and in their effectiveness for American life.

In the pronouncements of the Interdepartmental Committee great stress is laid upon the government's responsibility for the care of the indigent. With this again we are in accord but that responsibility surely cannot be visualized as an exclusive responsibility nor as one which must absorb the social resources that have been developed through our existing American procedure. Here again we should like to emphasize the development of cooperative plans by the public and private agencies. Here again if the cooperative plan is to be intensified, there may be an opportunity for the wise and profitable expenditure of public funds to remunerate in part the private institutions for the public service which they are rendering and thus to increase their effectiveness for the promotion of the public welfare. The allocation of tax support for these public services would stimulate the private institutions toward still greater efforts and would, we hope, place at the disposal of the medically indigent and the indigent, facilities which the government would undoubtedly find it extremely difficult to duplicate. If tax support were granted to the private institutions for these public services, a viewpoint of certain less privileged groups, especially among the laboring and the agricultural population, would be effectively met. They contend that they wish to receive sickness care not as charity but as a right. If they were admitted into private institutions on the basis of a part pay rendered by the government agencies, they would feel that they have a claim upon the service of the private institution and the odium of receiving charity—a viewpoint, by the way, which it is very difficult to evaluate—would be effectively removed. It is for this reason again that we enter here a plea for a continuance of the historical

relationship between the public and private agencies and an intensification of this relationship.

Concerning the prepayment of hospital care, our three hospital associations are in accord that through nonprofit plans, on a voluntary basis, sound programs under professional leadership, and extension of these plans to rural areas with a liberalization of the membership requirements and the extension of benefits, should be strongly urged. The hospital insurance plans which are so young, have, nevertheless already shown their ability to face the national needs with a vigorous effectiveness. These plans should be given the fullest encouragement. If effective, as they undoubtedly will be, they will reach larger sections of our population. They will reach down more and more into the less privileged groups as financial reserves are built up which will make them actuarially and financially sound and will encompass, we honestly believe, a major part of the need toward the alleviation of which the National Health Program is devised. The suggestion has been made and is seriously entertained to request the Interdepartmental Committee that steps be taken to formulate legislation enabling these associations to secure federal charters not only as a stimulation to them in their endeavors but also to facilitate administration and extension.

With reference to compulsory health insurance, our three associations have not as yet reached a complete unanimity. To this much all three associations would subscribe, that if provisions for compulsory health insurance are to be understood as a prescription for every citizen to provide for some form of health and sickness security, all of us would be in complete accord. In other words, if it were left to the individual citizen to adopt this or that form, provided he adopts a form of economic protection in sickness, all of us would subscribe to such a program. With reference to alternative plans, however, we might find among ourselves some diversity of opinion.

Finally, with reference to wage loss compensation during illness, which would also affect the private hospitals in many economic and social ways, our three associations heartily endorse the plans which are now under development by the Interdepartmental Committee, stressing again, however, the thought that any forms of acceptable insurance which may now be operative should be maintained rather than to plan to displace such agencies as have proved their ability to cope with the problems which they have been founded to meet.

The three hospital associations here represented submit this statement in the confident hope that it will be welcomed by the Interdepartmental Committee as the expression of those who have historically developed as complete a system of health care as any civilized nation in history has thus far succeeded in evolving. We thank the members of the Interdepartmental Committee and of the Technical Committee for the stimulation to our thinking which the various documents issued by the governmental committees have supplied.

DR. FRED CARTER, Cincinnati, Ohio,
President-elect, American Hospital Association,

MR. BRYCE TWITTY, Dallas, Texas,
President, American Protestant Hospital Association,

REVEREND ALPHONSE M. SCHWITALLA, S.J.,
St. Louis,
President, Catholic Hospital Association.

COMMITTEE ON MEDICAL ECONOMICS Prepayment Medical Plan

The Committee on Medical Economics presented a report on its studies and recommendations in regard to prepayment medical plans to the Council

on December 11. The Council instructed the Committee to continue its studies and to submit its recommendations to the county medical societies. These recommendations have been sent to presidents and secretaries of component societies and therefore will not be published in *THE JOURNAL*.

THE STATE BOARD OF HEALTH

As rapidly as possible communicable disease report cards are being distributed by the State Board of Health to physicians throughout the state through the district health offices. A single card for each case will replace the double postcard which has called for weekly reporting. Large metropolitan centers will continue to report weekly.

There are two reasons for returning to the single case type of report. First, it permits the practicing physician to report the communicable disease as soon as the case is seen. Only by prompt reporting will morbidity records be of any significance. Outbreaks of communicable disease often require immediate control measures and this has not been possible under the weekly reporting system. Secondly, the single card system provides information on the individual case of a specific disease. This information is frequently essential to adequate public health service.

Venereal disease report forms are in books accompanied by a sufficient number of postage free envelopes for mailing reports in to the district health office. After they are reviewed by the medical officer in charge of the district, the reports are sent in to the State Health Department to become a matter of permanent record.

The 1937 Annual Report of the State Board of Health will be off the press soon after the first of the year. The report will contain a summary of the year's activities by the State Health Commissioner, Dr. Harry F. Parker, and detailed reviews of the year's work by each of the division directors. Copies of the report will be available to physicians.

Tularemia has been a subject of considerable interest in the state during the last several weeks. The State Health Commissioner, through the daily and weekly press, warned Missourians to exercise special care in dressing rabbits and quail and to call a physician whenever symptoms appear. A few fatalities have been reported. While there was a rather sharp rise in cases reported in December, it is probable that all cases have not been reported.

Local public health services are increasing gradually throughout the state. Barton County was the last to provide a nursing service, bringing the total of full-time county public health nurses to eighteen. Five full-time county health departments are now functioning as part of the state program. Through the Social Security Act, federal funds are available with which the State Board of Health helps support these local health programs.

More and more interest is being manifested in the lectures on maternal and child health by Dr. Paul F. Fletcher, obstetrician, and Dr. O. F. Bradford, pediatrician. This state-wide program for lay persons is sponsored by the State Board of Health in cooperation with Missouri State Medical Association and Missouri University Extension Bureau. The schedule of these lectures appears on page 42.



NEW TRACHOMA HOSPITAL

Construction of the new State Trachoma Hospital at Rolla has been started. This will be the only state hospital maintained exclusively for the treatment of trachoma patients.

The contract which was awarded to the J. E. Williams Construction Company, University City, calls for an expenditure of \$104,575. This figure is approximately \$10,000 under the architect's estimate thus permitting

the addition of necessary equipment previously eliminated from the plans because of shortage of funds. The new hospital will be financed by a state appropriation of \$75,000 and a P. W. A. direct grant. It will be situated on a three-acre plot of land adjacent to the City of Rolla which was donated by the Rolla Chamber of Commerce.

Dr. J. E. Smith is superintendent of the Trachoma Hospital.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Buchanan County Medical Society

The Buchanan County Medical Society met October 5 at the Moila Club with members of the St. Joseph Bar Association as guests.

Following a banquet the group was entertained by an address by Honorable Merrill E. Otis on "A Modern Judge Reviews an Ancient Trial." His presentation was interesting, entertaining and classical and was enjoyed by everyone.

After the address the members of the Bar Association withdrew and the Society was called to order by the president, Dr. G. T. Bloomer.

The following communications were read: a letter from Dr. Spence Redman, Platte City, in regard to the medical programs on obstetrics and pediatrics; a card of appreciation from Mrs. C. S. Branson and family for the flowers sent at Dr. Branson's death; a telegram from Dr. Charles W. Fassett with best wishes for the banquet and regards to Judge Otis; a letter from Mr. I. R. Bundy, librarian of the Public Library, in regard to five hundred bound medical journals that the Society might have for its library; a bulletin from the Missouri State Medical Association, and a letter from Dr. A. S. Bristow, Councilor, concerning the State Board of Health plan in the district.

Dr. E. M. Shores was elected to fill the unexpired term of Dr. Branson on the board of censors.

Dr. E. E. DeLong was elected to active membership.

Information on the proposed Group Hospital plan was read. It was moved that a committee make an investigation and report.

A program on maternal welfare was presented by Dr. Cabray Wortley but a motion to approve a local clinic failed to carry.

Meeting of October 17

A called meeting of the Society met October 17 with seventeen members present.

Mr. Carl C. Schudde, District Supervisor, Group Hospital Service, Inc., St. Louis, described the plan in operation in St. Louis.

Dr. W. T. Elam, chairman of the general staff and supervisory committee, reported the approval of the committee of the plan. The plan was endorsed by the Society.

It was moved by Dr. Elam, seconded by Dr. Cabray Wortley, that two members be appointed to serve on a temporary committee to establish the Group Hospital plan in Buchanan County. The motion carried and Drs. E. M. Shores and James O'Donoghue were appointed to the committee.

Meeting of November 2

The Society met at the Missouri Methodist Hospital with twenty-six members present.

Dr. T. L. Howden, St. Joseph, presented a paper on "Common Types of Neuroses." His paper was timely and was well received. He emphasized the importance of the early recognition and the correct handling of such cases. The paper was discussed by Drs. E. E. DeLong, Jacob Kulowski, J. H. Ryan, O. E. Whitsell, Gregg Thompson and W. T. Elam and closed by Dr. Howden.

It was moved that the temporary committee be instructed to urge Group Hospital Service, Inc., to grant a fee in the amount of \$7.50 for ordinary laboratory procedures, the present fee at the Missouri Methodist Hospital. The motion carried.

O. EARL WHITSELL, M.D., Secretary.

SECOND COUNCILOR DISTRICT

H. D. GOODRICH, HANNIBAL, COUNCILOR

Marion-Ralls County Medical Society

The Marion-Ralls County Medical Society met at the Levering Hospital, Hannibal, September 2.

Dr. H. B. Goodrich, Hannibal, moved that the group immunization plan be continued as of last year and the motion carried.

Dr. D. B. Landau reported receipt of books from the late Dr. Sanford, Palmyra.

Committee chairmen for the Mississippi Valley Medical Society meeting were named as follow: Reception, Dr. F. E. Sultzman; registration, Dr. W. J. Smith; hotels, Dr. W. F. Francka; exhibits, Dr. B. L. Murphy; stag meeting, Drs. W. F. Francka and J. W. Hardesty.

The following members were present: Drs. T. A. Roselle, Palmyra; G. A. Hornback, F. E. Sultzman, W. J. Smith, H. B. Goodrich, D. B. Landau, E. T. Hornback, H. B. Norton and C. E. Salyer, Hannibal.

Meeting of October 7

The Society met at the Mark Twain Hotel for dinner, October 7.

Mr. Carl C. Schudde, St. Louis, presented the Group Hospital plan. He stated that this plan had been operating in St. Louis for several years and had been introduced in other cities in the state and was working out successfully. In each place the plan has been sponsored by the Society. Members were given literature and were told exactly how the plan would function.

Members present were Drs. J. J. Reichmann, W. F. Francka, H. B. Goodrich, C. E. Salyer, F. E. Sultzman, E. R. Motley, W. F. Lauten, W. J. Smith, J. W. Hardesty, B. L. Murphy, Hannibal; T. A. Roselle, Palmyra; W. D. Pipkin and J. H. Kibbe, Monroe City.

B. L. MURPHY, M.D., Secretary.

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society met at the Public Library, Moberly, November 8.

Dr. G. Wilse Robinson, Sr., Kansas City, spoke on "Mental Health." He illustrated his talk with motion pictures showing the modern treatment of mental diseases.

Guests and members at the meeting were: Drs. P. V. Dreyer, Huntsville; M. C. McMurphy and F. A. Barnett, Paris; C. C. Smith, L. E. Huber, M. P. Hunter, R. D. Streetor, W. R. Langston, L. L. Grzesk, F. L. McCormick and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

A. J. CAMPBELL, SEDALIA, COUNCILOR

Pettis County Medical Society

The Pettis County Medical Society met December 5 at Sedalia.

The following officers were elected: President, Dr. Charles D. Osborne, Sedalia; vice president, Dr. Charles H. Brady, Sedalia; treasurer, Dr. Alfred E. Monroe, Sedalia; secretary, Dr. Archie L. Walter, Sedalia; member of censor committee, Dr. Frank R. Morley, Sedalia; delegate, Dr. William A. Beckemeyer, Sedalia; alternate, Dr. Frank B. Long, Sedalia.

JOHN B. CARLISLE, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met at the Arcade Hotel, West Plains, December 8, for dinner at noon, with the following members and guests present: Drs. Urban J. Busiek, F. T. H'Doubler, E. H. Rainwater and M. L. Napper, Springfield; A. H. Thornburgh, E. C. Bohrer, E. R. Bohrer, P. D. Gum, J. W. Bingham, R. E. Hogan, West Plains; A. C. Ames, R. A. Ryan, H. G. Frame, R. W. Denney, Mountain Grove; J. R. Mott, Hartville; W. T. Eudy and Frank Hyde, Eminence; J. B. McDaniels, Summerville; L. T. Van Noy, Norwood; F. A. Barnes, Thayer, and H. B. Hull, Mammoth Spring, Arkansas.

The secretary presented a request from the State Board of Health that members use their influence toward increasing the facilities of the state laboratory.

A plan of the State Association to select subjects for discussion at the monthly meetings of the societies and to discuss these subjects in *THE JOURNAL* was approved.

The secretary explained the study of medical care being made by the American Medical Association and gave out blanks for the survey.

Dr. Urban Busiek, Springfield, spoke interestingly on "Nephritis in Children."

Dr. E. H. Rainwater, Springfield, talked on "Cataract Extraction" and showed some motion pictures.

Dr. F. T. H'Doubler, Springfield, reported a meeting recently of the International Congress on Goiter and some of the things discussed at the meeting.

Dr. M. L. Napper, Springfield, spoke briefly.

The following officers were elected: President, Dr. Homer G. Frame, Mountain Grove; vice president, Dr. R. E. Hogan, West Plains; secretary-treasurer, Dr. E. R. Bohrer, West Plains; censor for three years, Dr. R. A. Ryan, Mountain Grove; delegate for Howell County, Dr. A. H. Thornburgh, West Plains, alternate, Dr. P. D. Gum, West Plains; delegate for Oregon County, Dr. F. A. Barnes, Thayer, alternate, Dr. C. W. Cooper, Thayer; delegate for Texas County, Dr. L. C. Randall, Licking, alternate, Dr. L. M. Dillman, Houston; delegate for Wright County, Dr. R. A. Ryan, Mountain Grove, alternate, Dr. L. T. Van Noy, Norwood; delegate for Douglas

County, Dr. R. M. Norman, Ava, alternate, Dr. M. C. Gentry, Ava.

The dues were voted \$10 for the next year.

It was decided to hold monthly meetings, the next to be at Houston on January 12.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

17th Annual Meeting, St. Louis

President, Mrs. C. C. Tomlinson, Omaha, Nebraska.

President-Elect, Mrs. Rolla K. Packard, Chicago.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

15th Annual Meeting, Excelsior Springs

President, Mrs. Herbert L. Mantz, Kansas City.

President-Elect, Mrs. Paul F. Cole, Springfield.

The close of 1938 finds two thirds of the present regime marked off the calendar. Let us follow the order of the day with an inventory of what resources we now possess, and what remains to be done during the four months of 1939 before the annual meeting.

1. Has your county held a successful meeting and program for the public?

2. Have you met the required quota of *Hygeia* subscriptions, that of one per member? Are you availing yourselves of the \$1.25 rate which continues only through January?

3. Has every eligible physician's wife in your county been contacted for membership? Do you know of any prospective members-at-large? Can you report any county medical society interested in organizing an auxiliary?

4. Are you making the students of your high schools aware of the state-wide essay contest on "Highway Hazards," closing February 1, 1939?

5. Does your locality receive the "A. M. A." broadcasts directed to our schools over NBC Blue network, Wednesday, 1 p. m.? Have you publicized this excellent program in your community?

6. Have you followed the study program as outlined in the October *Bulletin* of the Woman's Auxiliary? Are you keeping pace with the current comment on both the state and national health programs?

7. Are you on the right side of the ledger financially? Has the state treasurer received your membership dues with the additional 10 cents per member assessment?

8. Have you kept an adequate record for our state files of your county's activities in the form of yearbook, programs, roster, press clippings and pictures?

9. Have you budgeted your time and money to permit attendance at the two annual conventions in the spring? April 11-12, 1939, Excelsior Springs, Woman's Auxiliary to the Missouri State Medical Association; May 15-19, 1939, Hotel Chase, St. Louis, Woman's Auxiliary to the American Medical Association.

Thus we must analyze to the end that our record will bring that coveted "Well done," just four months hence.

For all of you, may 1939 bring renewed joy and satisfaction in the privileges of service and fellowship in the Woman's Auxiliary to the Missouri State Medical Association.

MRS. HERBERT L. MANTZ, President.

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THE EYE IN CONGENITAL SYPHILIS

JOHN McLEOD, M.D.

KANSAS CITY, MO.

The presence of intra-ocular lesions in congenital syphilis has been recognized at least since 1858 when Bader¹ described small circumscribed white spots in the fundi of a patient who had had interstitial keratitis. This we now know is a manifestation of the disease. This was only seven years after the invention of the ophthalmoscope by Helmholtz and five years before the publication of Jonathan Hutchinson's treatise² which established beyond doubt the connection between "hereditary" syphilis and certain previously described ocular findings. At that time diagnosis depended entirely upon clinical signs, the causative organism being unknown until forty years later and laboratory tests unknown until nearly fifty years later. Hutchinson's ideas were not fully accepted until many years later, but his treatise now ranks among the great literature of medicine.

That the eyes could be affected in acquired syphilis has been known since early in the history of the disease. In 1830 Lawrence¹ published a book on the subject and as early as 1567 Juan di Vigo spoke of "various diseases of the eye which are caused by lues." Even in Lopez de Villalobos³ great poem written in 1498 there is an allusion to ocular involvement. This probably, and in the opinion of the translators, does refer to the prodromal symptoms of acquired infection but requires little stretching of the imagination to make it apply to interstitial keratitis.

Black lips and heavy eyes ill favor the visage,
Feet do drag unwillingly their duties to perform,
Lack-luster eyes thru hazy fog unseeing gaze,
And he performs of duties but a tithe of other days
All these signs with Egypt's plague do well conform.

If "Egypt's plague" was, as is highly possible, a form of tuberculosis, here may be a reference to the similarity between the interstitial keratitis of the two diseases.

The modern concept of ocular manifestations of

congenital syphilis rests upon the works of Sidler-Huguenin,⁴ Igersheimer⁵ and Groenouw⁶ amplified by the work of many other clinical and experimental investigators.

Conforming to the general pathological conditions of congenital syphilis, most of the eye lesions are late manifestations. Those children born with syphilis in the florid stage exhibit few ocular lesions and, if adequately treated, develop few. This is reasonable since the primary stages are usually passed in utero and if the child survives it is born with tertiary syphilis. Most of the ocular lesions of acquired syphilis are late symptoms with the striking exception of iritis which is of the secondary stage and rarely occurs in children.

The exact incidence of eye signs of congenital syphilis is undetermined, either in eye diseases in general or in congenital syphilis. Statistics are at such great variance that no attempt will be made to quote. The records of the clinic for congenital syphilis at the Children's Mercy Hospital have been studied. More than 1500 records are on file. Of these, approximately 300 records contain notes of ophthalmic examinations made by members of the ophthalmological staff which are sufficiently complete to enable the formation of a judgment as to the eye condition. Out of this group there are only seven cases in which the examiner has noted positively that the eyes have been normal in all respects. In addition, we have eighty patients under active treatment at present or who have recently completed their courses. Of these only nine have been found to be free in all respects from eye signs referable to congenital syphilis or to have only insignificant changes most likely attributable to other causes. Of this group of nine, five have had consistently negative Wassermann reactions but have had other clinical manifestations or represent the last children in families with definitely luetic histories. All this group has been examined personally, and while some of the notes are as yet incomplete there are no patients who have not been seen. I realize that many of the findings are perhaps not primarily syphilitic in origin since some are found in children otherwise clinically and serologically negative, and further that the line

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between normal and diseased cannot always be sharply drawn as what appears pathological to one observer may be within the limits of physiological variation to another, and I have consciously tried to avoid reading pathological changes in borderline cases. It is also possible that some of the minor findings in this series will ultimately be found to have no connection with congenital syphilis and to depend entirely upon some other cause such as avitaminosis or other nutritional disturbance, dependent upon the patient's social status.

With all these reservations in mind, it is my opinion that the eyes of few congenitally syphilitic children escape some involvement by the disease, that the eye exhibits stigmata more frequently than any other organ and that careful examination with this in mind in cases presenting obscure eye symptoms will suggest conditions which in many instances will be corroborated by physical and laboratory examination. Few lesions are observed which singly and in themselves are pathognomonic but when one sees the same appearances and combinations of them recurring again and again, coupled with other stigmata and confirmed by laboratory findings, the chain of circumstantial evidence becomes so strong that even its weakest link takes on significance.

No attempt will be made in this paper to give complete statistics regarding percentages of the various types of lesions since Lemoine⁷ has published them for a large number of cases from the same clinic up to 1933; nor shall I describe in detail the more obvious lesions such as interstitial keratitis, disseminated chorioretinitis and optic atrophy, which are thoroughly familiar to anyone accustomed to using the ophthalmoscope.

None of the ocular tissues are exempt from the effects of the spirochete or its toxins. Igersheimer⁸ demonstrated the occurrence of syphilitic conjunctivitis and demonstrated the presence of spirochetes in the secretion. This has been confirmed by others and two cases have been observed at Mercy Hospital within the last five years. Hemorrhage from the conjunctiva has been observed (Green⁹) and the eruption of syphilis may involve the conjunctiva. Even gummata have been reported.

Except for the appearance of the eruption of the skin the lids exhibit almost no effects. Tarsitis has been reported but not observed in any of our cases. Ptosis is, of course, the result of affection of the central nervous system.

Chronic dacryocystitis occurs and in many such cases exposed bone is encountered in probing, probably the result of periostitis of the nasal bone. Bilateral dacryadenitis is rare but is almost pathognomonic of congenital syphilis.

Interstitial keratitis is, according to almost all observers, the most common ocular lesion of congenital syphilis and is almost always due to congenital syphilis although occasionally one sees the disease resulting from tuberculosis. Considerable

difficulty is experienced in distinguishing the two unless other stigmata are present. A negative Wassermann and positive tuberculin test mean little since the incidence of syphilitic interstitial keratitis with negative Wassermann is greater than that of tuberculous origin in children. Occasionally none of the other members of Hutchinson's triad—and with this syndrome must be considered Clutton's joints—is present and the differentiation must be made on purely clinical appearance. In general, the tuberculous type is more patchy in distribution over the cornea and tends to remain so instead of the individual areas of infiltration tending to become confluent; salmon patches are rarely observed. The vascularization tends to be less intense and the vessels larger.

The pathogenesis of syphilitic interstitial keratitis has excited perhaps as much controversy as any one phase of the subject of congenital syphilis. The main difficulty is that while spirochetes are found in great numbers in the cornea, as everywhere else in the bodies of syphilitic infants, they can rarely and then only in small numbers be demonstrated in corneas of adults with interstitial keratitis, although they are recovered fairly regularly from the corneas of experimental animals with the same condition. Igersheimer as early as 1913 proposed the classification of cases into three groups as follows: (1) neonatal and early infancy, (2) between the ages of 6 and 10, (3) older children and adults. The first group corresponds closely to the experimental type and is apparently a true spirochetal infection of the cornea. The third appears to be due to the setting up of an allergic state in the corneal tissues by the spirochete which then disappears. Later, an anaphylactic reaction occurs, produced by the effect of toxins generated by active disease in some other focus. The second type seems to lie intermediate between the other two and to have a mixed origin. It is now generally considered that this grouping is valid although apparently some other factor may be responsible for exciting the reaction since cases have been observed (Dennie) in which the keratitis has appeared long after the Wassermann has been reversed and the patient apparently cured. That the reticulo-endothelial system is implicated is indicated by the results of malarial therapy reported by Lemoine⁷ from this clinic.

Other corneal conditions have been reported such as phlyctenular keratitis although the connection has not been proved. Measurements of about 300 corneas by Lemoine and me have been in line with Fuchs'¹⁰ observation that the vertical diameter is likely to equal or exceed the horizontal in congenital syphilitic children.

The most common lesion of the iris in congenital syphilis is the one described by Lemoine.⁷ There is a delicate film of grayish tissue covering and obscuring the crypts and occasionally heaped up over the iris as shown by the slit lamp. This may be present over the entire iris or may involve only

sectors and in some cases is delicately pigmented. I believe this may be in reality two separate conditions, one in which the membrane is not pigmented and due to an actual tissue change, and the other in which the membrane is heavier and contains pigment due to a slow iritis, probably intra-uterine in onset. The first type would be analogous to certain deviations from the normal in the appearance of the optic disk which I shall describe.

The acute form of iritis is not often seen. When it does occur in children under 10 it is almost certainly syphilitic, and appears to lead to lens opacities more often than iritis in other conditions.

Vitreous opacities in children may occur associated with the early stages of chorioretinitis or, without any inflammatory process being apparent in the fundus, as a diffuse haze in which the individual opacities cannot be seen. Here again, the presence of the condition is almost pathognomonic.

Abnormalities of the pupils appear with great regularity in congenital syphilis, most frequently in the latent types and those involving the central nervous system. The pupil may be irregular, either due to central lesions or perhaps to distortion by the film already referred to, sluggish in reaction or completely fixed or the two pupils may be unequal in size.

Careful examination of the fundus oculi in all cases of suspected congenital syphilis will pay large dividends, not so much in the recognition of the graver lesions seriously affecting vision such as optic atrophy and frank chorioretinitis, but in the recognition of certain minor departures from the normal in which vision is not affected.

In general, fundus lesions fall into the classification set up in 1902 by Sidler-Huguenin⁴ and may be divided into four main types as follow:

Type I. The so-called "salt and pepper" fundus with yellowish, or grayish red dots interspersed among a multitude of granular brown to black pigment dots. In the more severe forms the spots are larger and tend to invade the macular region; the nerve may be atrophic and vision impaired.

Type II. Larger and more irregular pigment masses occur, located mostly at the periphery, between which similar "bleached" areas appear. The nerve may be atrophic. Sidler-Huguenin has noted this type after the subsidence of interstitial keratitis.

Type III. Disseminated chorioretinitis. The lesions are round or oval and appear as an atrophic patch surrounded by a ring of pigment. The macula may be involved.

Type IV. Similar to retinitis pigmentosa and at times difficult to differentiate. The visual symptoms are identical. This type seems now to be very rare.

It is obvious that all these changes are dependent upon the migration of pigment consequent to inflammatory processes and as a natural result of the repair of localized lesions or in response to stimulation of the pigment cells as part of the general defense mechanism of the body.

It seems hardly necessary to note that with the passage of time, the earlier recognition of the disease due in part to the attention being paid in schools to defective vision and above all to the prevalence of at least some prenatal treatment, these descriptions are now to a large extent only types. Much more commonly seen than type I is a fine stippling of the entire retina or of one or more quadrants of the retina by pigment dots which increase in density towards the periphery and which may involve the macular region without, however, causing much diminution of vision if the optic nerve is not atrophic. Interspersed among these finer dots one frequently sees larger more or less regular masses of pigment, apparently situated in the nerve fiber layer while the others appear to lie deeper in the retina.

Type II is occasionally seen, but its place seems to be taken by an irregular mottling or radial streaking of the retina and choroid. This likewise may involve the entire retina but if only a portion is affected the lower quadrant seems to be the "site of election." It may be so marked as to give the appearance of an almost complete atrophy of the pigment epithelium and the overlying retina may be densely stippled. Naturally, the visual fields are affected, especially for colors.

Types III and IV are occasionally seen, the latter only twice in our entire series.

Optic neuritis occurs fairly frequently and may lead to a greater or less degree of secondary atrophy characterized by pallor of the disk, an area of degeneration of the retina surrounding the disk and the usual disturbances of vision and field changes. Primary atrophy also occurs.

The walls of the choroidal and retinal vessels may be so thickened by perivascular infiltration as to appear as dense white lines bordering a thread-like lumen, or the vessel may be almost entirely obliterated appearing as a fibrous cord. This often disappears under appropriate treatment.

Palsy of any of the ocular muscles may occur due to central nervous system involvement. Concomitant strabismus is probably not a manifestation of congenital syphilis although in some of our families the incidence seems almost beyond coincidence.

Besides these more obvious conditions, certain others have been noted running fairly consistently through our group of cases. It is this group of signs to which I referred earlier as being possibly not of syphilitic origin. Here the ice becomes very thin since I have only the evidence of observation and rationalization to support my speculations. I have come to realize that I am reviving to a certain extent the generally discarded conceptions of Antonelli,¹¹ and frankly offer this portion of my paper for criticism, constructive or otherwise. It is possible that at some later time I shall be able to prove or disprove the connection and in the meantime, perhaps, other observations may be stimulated.

The chief finding in this group is an obscuring

of the optic disk by a veil of what appears to be glial tissue. The disk margins themselves do not seem to be blurred or elevated but the physiological cups are filled and often the vessels come forward two or three diopters, supported by a cone of tissue, down whose sides they appear to slope back to the retinal level. The configuration is strikingly similar to the so-called "conical disk," a congenital anomaly due to the failure of the papilla of Bergmeister and the sheath of the hyaloid vessels to degenerate during fetal life. With a yellow filter in the ophthalmoscope, this delicate veil can be seen between the vessels. It has a fine fibrillar appearance and contains many small capillaries, giving the entire structure an appearance of slight hyperemia. The central vessels and their branches within the cone are sheathed with a denser tissue which has the appearance of infiltration into the perivascular lymph spaces. Coupled with this in many cases is a slight edema of the retina similar to that which has been described by Lemoine¹² as a sign of hypothyroidism. Whether this depends upon coincidental thyroid dysfunction I do not know, but it appears likely. The picture must not be confused with optic neuritis since there is no blurring of the disk margins, no interference with vision, no distention of vessels and absolutely no evidence of inflammation. It does not appear to change under the influence of treatment.

The second sign under discussion consists of a more or less general bleaching of the retinal pigment so that the choroidal vessels become visible and apparently the choroid is also lacking in pigment. This appearance, when present, is nearly always most marked in the temporal half of the lower quadrant, exactly in the region of the optic cleft, and may be noted in this region with the remainder of the retina practically normal. There may be none or only minimal stippling. The condition may shade into the "mottled fundus" with pigmented and bleached streaks alternating, or into a fundus which is abnormally light in color as compared to the patient's general and hair pigmentation, i. e., a blond fundus in a brunette, or an almost albino fundus in a blond.

The similarity of one to a definite congenital anomaly and the location of the other in the site of frequent deficiencies of development lead to consideration of the possibility that, if these signs be truly stigmata of congenital syphilis, they are due not to the results of fetal or neonatal inflammatory processes but to actual tissue changes from the action of syphilitic toxins during the formation and differentiation of the ocular tissues. It is this line of thought that leads me to believe that Lemoine's iris may actually be two different conditions.

The correlation between these signs and the presence of congenital syphilis runs fairly high, from about 30 to 40 per cent, in cases referred for examination because of the presence of these signs. Many of the remainder of the cases presented one or two other indefinite stigmata but were serologi-

cally and otherwise clinically negative. There is a possibility that the correlation would be higher if the entire family history were determined in all cases, and it were known if the patient represented the last of a series of children living or dead in a syphilitic family. Unfortunately, due to the understaffed condition of the clinic it has not been possible to collect complete histories but an attempt will be made to do this. In some of the families now under treatment, the fundus lesions can be traced from obvious abnormalities through these indefinite findings to almost complete normality.

If these findings are not specifically the result of congenital syphilis it seems likely, in the light of Hale's¹³ work in producing ocular and other congenital anomalies in pigs through vitamin A deficiencies in the sow, that they may be due to this factor in the mother, perhaps an indirect result of her infection. In support of this conception is the appearance of similar signs in a group of twelve unrelated children from a single rural community, all without other stigmata and all obviously suffering from avitaminosis A. In none was the appearance of the fundi exactly as described above, but the picture was similar.

In conclusion, I shall review briefly the history of one of our families. I have selected this particular family because the parents are distinctly above the average social and intellectual status for the clinic, and hence the possibility of vitamin deficiency is decidedly less than average.

Family F. Mother's Wassermann 4 plus, Kline 4 plus. Father's Wassermann negative. Neither had received treatment. The first child died of meningitis, cause unknown, in infancy. There were no miscarriages. The children were first seen in the clinic in August, 1932.

Child 2. Female, aged 9, blood and spinal fluid Wassermann 4 plus. Diagnosis, juvenile tabes. V. R. E.-C. F. 8'; V. L. E.-C. F. 5'. Pupils fixed and slightly irregular; right smaller than left. Optic neuritis and chorioretinitis.

At the present time after five years of treatment the findings are as follows. Vision, right eye, 20/40; vision, left eye, 20/70, cornea circular. Iris crypts entirely obliterated by film. Pupils slightly irregular, the left slightly larger than the right; both react sluggishly to light and slightly better to accommodation. Both lenses show small posterior subcapsular opacities, similar to those observed in retinitis pigmentosa. The disks are white and irregular in outline with wide rings of choroidal degeneration; in the right eye there is a large scarred area just nasal to the disk. White stripes are visible along the arteries extending out into the retina. The topography is flat and no sign of physiologic cups can be seen. There are large and small round and irregular annular lesions throughout the fundus with white centers and pigmented margins. Between these lesions the retina is mottled and stippled, the pigment distribution in places appearing similar to retinitis pigmentosa.

Child 3. Male twin, aged 6. Blood and spinal fluid Wassermann negative. Vision each eye 20/20. Pupils equal and regular. Salt and pepper fundus. Treated for over two years.

Findings at present are: corneas circular; iris covered with fine film with a few clear areas; pupils equal, slightly irregular and react sluggishly to light; right fundus, disk fairly normal in appearance with a slight

ring of possible postneuritic atrophy. The vessels are normal in size. The macula is normal. There is uniform coarse pigment stippling throughout with a few typical "salt and pepper" areas in the extreme periphery. In the left fundus the disk outlines are the same as in the right eye but the physiological cup is obliterated and the vessels are slightly sheathed by a veil of fine tissue. Otherwise the left fundus is the same as the right.

Child 4. Male twin of child 2. Blood and spinal fluid Wassermann negative. Vision right eye, 20/20; left eye, 20/25. Pupils equal and regular; salt and pepper fundus.

Present findings: Vision right eye, 20/15; left eye, 20/20. Cornea of right eye horizontally oval, of left, circular. Iris shows irregular film. The pupils are slightly irregular and sluggish; the left pupil is slightly larger than the right. The fundus picture is almost identical with that in child 2 except that the right disk is slightly more affected than the left.

Child 5. Female, aged 3 years. Blood and spinal fluid tests negative. Vision, right eye, 20/25; vision, left eye, 20/20. Pupils equal and regular. Fundi mottled at periphery.

Present findings: Vision, right eye, 20/20; vision, left eye, 20/20. Corneas circular. Iris shows little film. Pupils regular, the left larger than the right and almost fixed, the right sluggish. Fundi: Both disks are covered with tissue, the physiologic cups are filled and the vessels elevated about 2 diopters. The maculae are mottled and there is a fairly uniform stippling of the retina with mottling at the periphery.

Child 6. Male, aged 2 years. Blood and spinal fluid tests negative. Pupils equal and regular. Fundus negative.

Present findings: Vision, each eye, 20/25. Corneas circular. Pupils equal and regular but sluggish. Practically no film on iris. Both disks are normal in topography with a slight pigment ring. A slight film of tissue overlies the surface but the vessels are not elevated. There is a slight edema of the retina and a fairly uniform but slight pigment stippling.

Child 7. Female, now aged 5. Blood and spinal fluid tests and clinical findings negative. No treatment.

Present findings: Vision, each eye, 20/20. Corneas circular. Pupils equal, regular and slightly sluggish. Iris shows a slight film peripheral to the frill. Fundi: Both disks are filled with tissue and the vessels are slightly elevated. There is a slight uniform stippling.

Child 8. Female, now aged 3. Blood and spinal fluid tests and clinical findings negative. No treatment.

Present findings: Corneas circular. Pupils equal and regular and react normally. Iris normal. Both disks show slight filming but the vessels are not elevated and the physiologic cups are present. There is a slight pigment stippling of the retina.

In addition to the described findings, all these children except the last two have deficient accommodation and convergence. None have any marked refractive errors.

The last two children illustrate the effect of prenatal treatment. During the sixth pregnancy, which was in progress when the first five children were brought to the clinic, the mother had five or six months of prenatal treatment and adequate treatment during the entire seventh. She had had no treatment before we saw the children.

There are other families in our group which show the same gradient in the ocular findings, but this one shows admirably the decline in the severity of the effect of the disease on the eyes.

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EARLY ERUPTIVE SYPHILIS

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The subject of syphilis is at present a live one in our country. For the first time perhaps we may get somewhere with this important problem; however, in our enthusiasm we should take cognizance of certain facts that will make the control of syphilis difficult.

As syphilis is so often an asymptomatic disease so also is it apparently an asymptomatic infection in at least 50 per cent of the white race and to a greater proportion in the Negro race. Even if there is a treatment clinic in every block a major portion of our populace who have syphilis will not take treatment for a disease they do not know they have. There is at present, unfortunately, a tendency to incriminate the medical profession as being derelict in handling syphilis. The great dereliction lies in the failure to educate the people in regard to venereal diseases. Until the facts regarding syphilis are given to the public at sexual maturity and constantly kept before them any program for the control of syphilis will be ineffective.

Until we can educate the people to consult the family physician at frequent intervals, until we can educate them to have routine blood tests at frequent intervals, until we can educate them to take seriously any lesion on the genitals no matter how minute, the majority of syphilis cases will go untreated.

If everyone who contracted syphilis would run a violent course like the average case of smallpox does our control of syphilis would be greatly simplified. Fortunately, from the standpoint of diagnosis early syphilis in women frequently gives rise to severe symptoms. The initial lesion in the female is usually on the cervix. Stookey has called attention to the large boggy cervix as characteristic of primary syphilis of this organ.

The only objective symptom of primary syphilis

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of the cervix is a mild leukorrhea to which, as we know, most women attach little significance. For this reason it is the occurrence of a constitutional disturbance or the appearance of secondary disturbances that usually first brings the woman infected with syphilis to her physician.

It is important to know that the constitutional symptoms often precede for weeks and months the occurrence of the secondary symptoms. If the syphilitic cause of these various complaints is unascertained

these women go from one physician to another without obtaining relief. Any woman presenting the following constitutional symptoms should have a searching clinical examination for syphilis and a serological test performed which at this stage is almost always positive: headache, sore throat, insomnia, ostalgia, arthralgia, myalgia, malaise, loss of weight, fever, neurasthenia, neuritis, deafness or visual disturbances.

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SYMPOSIUM ON SYPHILIS

THE LABORATORY AS A GUIDE TO THE DIAGNOSIS AND TREATMENT OF SYPHILIS

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The easy availability of laboratories for the serologic test of syphilis is necessary and desirable. These valuable facilities should be utilized to the utmost as an aid to diagnosis and a check upon the progress of treatment. Nevertheless, it must be emphasized that the serology, whether giving positive or negative reaction is not the sole criterion upon which treatment is given or withheld.

The single positive reaction, in itself, means only that in the opinion of the laboratory the blood has the necessary properties to permit a positive reaction. Realization that technical difficulties are encountered at times in all laboratories should induce caution in unqualified acceptance of reports.

The responsibility for the diagnosis of syphilis, in the final analysis, rests upon the physician. Moore says, "A single positive report, no matter by what technic, should never be accepted at its face value in the absence of indubitable clinical findings until the same result is obtained upon the examination of a second specimen or of the same specimen in a second laboratory. The harm done by a mistaken diagnosis of syphilis based upon a false laboratory report is frequently irreparable and may outweigh any number of false negative reports."

THE LABORATORY AS A GUIDE TO TREATMENT

Primary Stage; Darkfield Examination.—The diagnosis of syphilis in the chancre stage is essentially a laboratory procedure. Darkfield examinations should be made repeatedly on any suspicious sore. A positive darkfield illumination permits treatment to be started at once. The chance of cure is greatest at this time. Persistent negative results in darkfield examinations should be followed by repeated blood tests. A single positive blood test after negative darkfield examination should be repeated unless conclusive clinical signs are present. Treatment should be intensive and continuous with serologic tests at monthly intervals. A spinal fluid examination is essential at the end of the first year of treatment or before the patient is dismissed or

put on a rest interval. It is good practice to continue treatment for one year after the first negative blood reaction providing the blood tests remain negative and the spinal fluid test is negative.

Persistent positive results of blood tests in early syphilis which has been treated without rest or lapse for more than six months is indicative of involvement of the nervous system.

Secondary Stage.—The trained observer has little difficulty in diagnosing the typical secondary lesion on the skin or mucous membrane. The blood test is usually positive in this stage. A single positive blood test without definite clinical symptoms must be repeated. The practice of giving antisyphilitic drugs without further study, to anyone who has an eruption on the skin or mucous membrane and a reported positive blood test can cause much harm to the patient and considerable embarrassment to the physician. Once the diagnosis is established, treatment must be intensive and continuous.

Latent Stage.—This period might, with more accurate meaning, be called the asymptomatic stage. It is at this time that the single positive or negative reaction is likely to be confusing. A positive blood test in the complete absence of clinical findings or positive history merits most careful investigation of the patient and a repetition of the blood test. A negative blood reaction may and frequently does exist with positive clinical findings. These negative reactions may become positive on repeatedly testing the blood or by the use of the provocative test in the form of bismuth or mercury.

Treatment, once the presence of syphilis is established, must depend upon the clinical findings and the result of the spinal fluid examination. Arsenicals are usually withheld until a course of heavy metal has been administered.

Third Stage.—The only difference between the third and the latent stages is that the third stage is accompanied by symptoms and definite clinical findings. Here again the serologic test is usually positive although a negative report does not rule

out the diagnosis of syphilis when made upon careful consideration of the clinical lesion.

Treatment at this time is not administered with the intent to change the blood. Except in certain types of neurosyphilis, in which a certain amount

of restoration of function seems to result from properly administered combinations of treatment, the only reason for therapy is to stop the progress of the disease.

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MANIFESTATIONS OF LATE SYPHILIS

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The manifestations of late syphilis are dependent upon prior damage to the tissues, primarily endarteritis and fibrotic processes and the resulting functional disorders with lowering of general tissue resistance to all damaging influences as well as to the specific toxins of the *Spirochaeta pallida*.

The term "late" refers to the phase of the disease rather than to the time which has elapsed since infection. This phase may develop at varying periods of time depending on (a) the patient's natural resistance, (b) whether or not treatment has been received and, if treatment has been received, the character of such treatment and, probably, (c) the virulence of the infecting strain.

It is of the utmost importance when confronted with one of the late manifestations of syphilis, that one should consider the patient as a whole and not merely the presenting lesions or symptoms. This can be done only by consideration of the pathologic conditions which have been and are present in the patient and by evaluating the extent of the existing damage.

The very presence of late manifestations indicates that a radical change has taken place for, certainly in all but a few instances, the patient's environment has not been altered nor has he been subjected to unusual strains or violence.

The one all important fact is that over a period of months or years the *Spirochaeta* has been actively causing inflammatory changes in the vascular system which have been followed by scar tissue, fibrosis and a thickening of the inner walls of the blood vessels. Thus the entire body is improperly supplied by blood and therefore tissue resistance is low. At the same time the specific toxins of the *Spirochaeta* have been exerting injurious effects upon blood, nerve, parenchymatous and connective tissue cells.

The period between the disappearance of the secondary or early eruptive lesions and the appearance of the late symptoms is commonly known as the latent or asymptomatic period. It is not a period of inactivity of the infection but a time during which no symptoms are manifest. The differentiation between latent syphilis and late syphilis is purely a clinical one in no way implying a different underlying pathological condition or degree of activity of the infection.

To attempt to discuss the many manifestations of late syphilis in a paper of this length would be utterly folly. Rather, I propose to consider merely the

principal types and their significance and a few of the points of differential diagnosis of late cutaneous lesions.

CARDIOVASCULAR SYPHILIS

Of primary consideration are aortitis and aneurysm. These two manifestations may be considered at the same time for the latter is merely the last stage of the first. Accentuation of the aortic second sound by a rapping, ringing or tambour quality is the earliest sign of aortic disease. Next is a systolic murmur at the aortic area. Such findings in a person under 30 years should cause strong suspicion that syphilis is present. Aneurysm in its earliest stages is diagnosed best by fluoroscopic examination by which abnormal dilatations of the aorta or its branches, under the systolic impulse of the heart may be observed.

Of almost equal importance with aortitis and aneurysm is coronary artery disease due to endarteritis and sclerosis of the vessels. The early symptoms may be varied and many. The likelihood of this complication must be borne in mind in the consideration of every case of late syphilis.

As vascular sclerosis is the one underlying process of syphilis, cerebral vascular accidents with resulting brain injury and concomitant signs are frequent manifestations of late syphilis.

A word of caution as to the treatment of advanced cardiovascular lesions would not be amiss. Arsphenamines, if used at all, must be preceded by a preparatory course of heavy metal, bismuth or mercury and iodide, lest a "therapeutic paradox" result from the too rapid action of arsphenamine and the patient die as the result of overactive therapy.

NEUROSYPHILIS

The signs and symptoms of early neurosyphilis are the ones which call for special attention. Those of the late stages are so characteristic and prominent that they can be recognized readily.

Headache, lightning pains and paresthesias, ringing in the ears and dizziness, impaired vision, extrabulbar paralyses, neuralgias, neurasthenoid symptoms, difficulty in urination and vague abdominal complaints, pupillary irregularities with disturbed light and perhaps accommodative reflexes frequently are the manifestations of an early neurosyphilis. The persistent unexplained presence of any one or a group of these signs or symptoms

arouses the suspicion that they are of syphilitic nature and demands blood and cerebrospinal fluid examinations.

VISCERAL SYPHILIS

I merely wish to call attention to the fact that gummata and syphilitic cicatrization may give gastro-intestinal findings closely simulating malignancy. In the differential diagnosis not only should a serological test be made but, if this proves negative, a short course of potassium iodide and mercury should be administered. If the lesions are syphilitic, rapid improvement in signs and symptoms usually will follow a course of such treatment. Thus the patient may be saved from an unnecessary operation and the physician from embarrassment.

LATE CUTANEOUS MANIFESTATIONS

The primary significance of late cutaneous syphilis is that it serves as a diagnostic sign in a person perhaps otherwise thought to be in good health; or it may serve as conclusive evidence in an individual suspected of a syphilitic infection yet having a negative serum.

Syphilitic Leukoderma.—This form is quite distinctive consisting of rounded, slightly oval or irregularly shaped, split-pea to dime sized or larger, discrete or confluent, depigmented macules surrounded by hyperpigmentation, occurring in patches symmetrically, frequently upon the sides of the neck in women. This disorder differs from vitiligo in its symmetrical appearance and its distribution on the neck rather than on the face and hands.

Palmar and Plantar Syphilides.—The involvement of the palms and soles in late syphilis varies considerably in appearance.

The commonest condition is a chronic persistent, slightly scaly patch or patches involving one or both palms, soles, or palms and soles. Certain characteristics, which although at times are difficult to recognize serve to classify these lesions properly. These are: (1) infiltration of the border; (2) curved and serpiginous edges, and (3) atrophy of the center of the lesions. If such lesions are asymmetrical the diagnosis is facilitated.

Allergic or contact eczema differs from these syphilitic palmar and plantar lesions in being more superficial, possessing ill defined borders, frequently forming vesicles or fissures and oozing.

Dermophytosis, although presenting well demarcated boundaries, often of a curved or serpiginous character, does not produce marked infiltration but often does form vesicles and fissures.

Arsenical keratoses may offer more of a problem than any other condition in differential diagnosis of a suspected palmar or plantar lesion. Arsenical keratoses occur as discrete warty lesions, or in a diffuse form being especially prominent around the sweat pores. Such lesions are hypertrophic and do not show the atrophy of syphilitic lesions.

The Nodular or Tuberculous Syphilide.—This type consists of reddish brown or copper colored firm lesions, split-pea sized or larger. The individual lesions never attain great size. They involve the entire thickness of the skin and often the subcutaneous tissue also. They frequently become covered by adherent scales or crusts. The lesions tend to form rings or segments of rings and to undergo involution with the formation of soft, tissue paper like scars as new lesions develop about them so that bizarre and characteristic circular or serpiginous patterns are produced. They frequently occur on the extensor surfaces of the arms, the forehead, chin, buttocks and back. The eruption is usually limited to one or a few regions of the body. This eruption may continue for years slowly involving large areas of skin.

The nodular syphilide must be differentiated from several diseases. First among these is lupus vulgaris. This condition is much slower in progress, the lesion less nodular and softer and accompanied by heavy dense scar formations which frequently show active lesions within the scar tissue. In epithelioma, the age of the patient, the usually solitary lesion, the characteristic hardness and raised rolled edges are significant. The ulcerative nodular lesions of bromoderma are recognizable by their eroded, irregular surface, perhaps presenting heavy crusts. The history may be of assistance.

Gumma.—Gummatous lesions are as a rule among the latest of all manifestations of syphilis. These lesions may occur in the bone, viscera, heart, brain, spinal cord, muscle, subcutaneous tissue or skin. When occurring in the skin they usually begin as one or a few subcutaneous circumscribed, firm, well defined, painless and indolent nodules or tumors. Slowly they increase in size until they may be two or more inches in diameter. At first free, they later become attached to the overlying skin which assumes a livid red or purplish hue. Finally, the overlying skin breaks, ulceration occurs with the discharge of a thick bloody or purulent secretion. The ulcer which results is oval or round with clean cut edges and purulent base, the typical "punched out" syphilitic ulcer. Bands of yellowish skin often extend between such ulcers. The resulting scars are typical, being pigmented at first and later becoming white, thin and papery. The commonest locations for such ulcers are points of frequent traumatism as about and just below the knee, the external aspect of the arm particularly near the elbow, the buttocks, forehead, face, nose and lips. When involving the face, large areas may be entirely destroyed resulting in horrible disfigurement; for example, the nose including its cartilaginous and bony structure at times is destroyed entirely by gummatous lesions.

Gumma must be distinguished from epithelioma, tuberculosis, bromoderma of the nodular type, varicose ulcer, sarcoma, nonmalignant neoplasms, sporotrichosis, leprosy, Hodgkin's disease and leukemic infiltrations of the skin. The differential

characteristics of the first three have been discussed under the nodular syphilides. The lesions in varicose ulcer are irregularly shaped with beveled borders while gummatous ulcerations are generally circular with steep sides producing a punched-out appearance. The ulcerations of leprosy are likely to be surrounded by a zone of anesthesia and are usually accompanied with other manifestations of the disease. This disease is extremely rare in the central portion of the United States. Sarcoma of the skin although at times closely resembling a nodular or gummatous syphilide is usually multiple, slower in its course and of a softer consistency. In sporotrichosis the site of inoculation is often recognizable, the nodules have a linear distribution along the course of the draining lymphatics and culture of material from the nodules shows the sporothrix. The leukemic and Hodgkin lesions of the skin are slow in their course and seldom ulcerate. The differential blood picture serves to identify leukemia and the usual presence of marked adenopathy points strongly to Hodgkin's disease. Nonmalignant neoplastic tumors may be differentiated by their course.

In concluding the consideration of the late cutaneous manifestations of syphilis, I should like to submit John H. Stokes' "ten basic physical characteristics of late syphilis." These are:

1. Solitary character, or at least the presence of few lesions.
2. Asymmetry, although by no means invariable.
3. Induration, deep palpable infiltration.
4. Indolence, a relatively low grade inflammatory process.
5. Arciform configuration, borders polycyclic or forming segments of circles both in individual lesions and in the configuration of a group of lesions.
6. Sharp margination of lesions, in ulcers "punched-out" appearance.

7. Tissue destruction and replacement with or without ulceration.

8. Tendency to central or one-sided healing with peripheral extension.

9. Scar formation, superficial atrophic (thin and wrinkled), noncontractile. The scar retains the arciform configuration of the lesion.

10. Peripheral hyperpigmentation of a rather persistent type.

LATE MUCOUS MEMBRANE LESIONS

The tongue is the most common site of attack in late syphilis. Gummata usually affect the central portions and rapidly form typical punched-out ulcers with soft edges. Gummata are differentiated from carcinoma in that carcinomata are always hard and usually attack the edge of the tongue and the floor of the mouth or buccal mucosa.

Syphilitic interstitial glossitis, a late manifestation, consists of a superficial inflammation of the tongue with atrophy of the papillae and smooth shiny scarring. There is an underlying sclerosis which in an advanced stage may lead to a diffuse enlargement.

Leukoplakia while not a syphilitic process *per se* is present in many cases of syphilis. For this reason it is well to examine the blood in all cases of leukoplakia.

CONCLUSION

The manifestations of late syphilis are due to prior damage to the tissues and a general lowering of tissue resistance to all damaging influences as well as to the specific toxins of the *Spirochaeta*. The variety and frequent absence of outstanding characteristic signs of late syphilis demand that we be "quick to suspect but slow to diagnose syphilis."

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THE USE OF FEVER THERAPY IN THE TREATMENT OF SYPHILIS

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Chemotherapy in the form of (1) arsenical compounds such as the arsphenamines and related compounds, (2) potassium iodide, and (3) compounds of mercury and bismuth is still considered the best and most essential method in the treatment of syphilis. However, in order to obtain the best possible results, medical authorities are in agreement that treatment must be started in the early stages of the disease and given intensively in approved courses over varying long periods of time of a year or more. Unfortunately, in spite of intensive chemical treatment, a small percentage of consistently treated syphilitic cases may advance to the late stages of the disease to which all untreated and insufficiently treated cases invariably progress.

The late stages of syphilis to which this discussion will especially refer are classified as follows: (1) general paresis, (2) taboparesis, (3) tabes dorsalis, and (4) cerebrospinal syphilis.

The intensive use of the arsphenamines and compounds of mercury by themselves, in the treatment of post-tertiary syphilis, is usually sadly lacking in satisfactory clinical improvement. The Swift-Ellis treatment, by which varying dilutions of the arsenated blood serum of the patient were injected into the spinal canal for the treatment of syphilitic spinal cord lesions, held the spotlight for many years mainly for the want of a better treatment; but with the advent of fever therapy it has rapidly gone into disuse. Tryparsamide, the pentavalent arsenical

especially recommended for the treatment of general paresis, gives the best clinical results when correlated with fever therapy.

DEFINITION

The term "fever therapy" is given to the intentional raising of body temperatures to certain levels above normal limits for varying periods of time by any one of a variety of agents. Artificial fever, hyperpyrexia, hyperthermia, electropyrexia and malarial fever are terms used to designate which agent is used to induce the high temperatures.

The beneficial effects of sustained high fevers in certain pathological conditions had been observed and appreciated for many years. Severe bouts of fever from erysipelas, lobar pneumonia and other hyperpyrexial diseases had been observed to leave an insane mind clear and apparently normal. Many chronic pyogenic diseases were reported to have been markedly improved following episodes of high fever. For many years clinical investigators attempted to duplicate these dramatic clinical improvements by artificially producing fever within the body and, up until 1918 when Wagner-Juaregg reported the clinical results from tertian malaria inoculation, experiments usually ended in disappointment. Confirmation by other workers duplicating Wagner-Juaregg's clinical results from the experimental inoculation of tertian malaria in the treatment of general paresis stimulated a renewed and enthusiastic interest in therapeutic artificial fever production. Medical literature soon contained numerous reports on the merits and disadvantages of malarial inoculations. Some investigators, disliking the idea of intentionally infecting patients with a disease which may be difficult to control, sought other therapeutic measures which would offer (1) better control of fever production and maintenance, (2) greater comfort to the patient and (3) freedom from long periods of hospitalization. In 1927 Neymann and Osborne reported their experiments on the production of hyperthermia by means of diathermy, and in 1933 Simpson reported the advantages of using an air-conditioned cabinet, the hypertherm. The use of these physical agents for the artificial production of hyperthermia opened up new therapeutic fields for physical therapy. Clinical investigators turned from treating syphilis to treating other diseases. Fever therapy is now recognized as an important adjunct when used rationally and correlated with other therapeutic methods.

METHODS

The methods used for raising body temperatures (fever and hyperthermia) are classified as follows:

1. Biological Agents:
 - a. Malaria (tertian).
 - b. Relapsing fever.
 - c. Typhoid vaccine (intravenous injections).
 - d. Milk injections (intramuscular).
 - e. Rat-bite fever (Sodoku).

2. Physical Agents:

- a. Radiation.
 1. Diathermy with cabinet.
 2. Electromagnetic induction with cabinet.
 3. Infra-red with cabinet.
- b. Hydrotherapy.
 1. Hot baths (immersion for one hour at 108 F).
- c. Heat conduction.
 1. Heated air—air conditioned cabinet.
 2. Electric blankets.

The choice of an agent for the production of therapeutic fever depends upon a number of factors such as (1) availability of agent, (2) constant expert medical supervision, (3) feasibility of treating large groups of patients at the same time, (4) low cost and (5) the period of hospitalization. In large hospitals, particularly those for the insane where the question of long hospitalization is of little consequence and the problem of low cost together with group treatment is paramount, tertian malarial inoculations for the treatment of neurosyphilis seem to be the method of choice.

TECHNIC FOR MALARIAL INOCULATIONS

At the Firmin Desloge Hospital and Clinic in St. Louis the following routine is used for the administration of artificial malarial therapy in the treatment of neurosyphilis.

I. *Preliminary Examination of the Patient.*—Before the patient is inoculated with tertian malaria the percentage of risk must first be determined by the following examination and tests: (1) weight, (2) blood pressure, (3) complete blood count, (4) urine analysis, (5) blood nonprotein nitrogen, (6) blood sugar, and (7) routine electrocardiogram.

II. *Clinical Indications.*—Therapeutic malarial inoculations are limited to the treatment of early syphilitic involvement of the central nervous system. The following clinical types are benefited when good infections are effected: (1) early and late paresis, (2) asymptomatic paresis, (3) tabo-paresis, (4) early tabes dorsalis, (5) late tabes with negative spinal fluid test, (6) optic atrophy, (7) asymptomatic neurosyphilis, (8) congenital neurosyphilis, and (9) early meningeal syphilis (after a course of arsphenamine and bismuth).

III. *Contraindications.*—The contraindications follow: (1) age above the arbitrary limit of 50 years, (2) acute respiratory disease, (3) active tuberculosis, (4) marked cachexia, (5) aneurysm, myocarditis, fatty heart, decompensated heart disease, (6) hypertension, marked arteriosclerosis, (7) pregnancy, (8) nephritis (with a 3 plus reaction for albumin, high urea and high nonprotein nitrogen), (9) excessive weight (over 200 pounds), (10) galloping paresis, (11) ascending urinary infection, and (12) hepatic disease (with positive liver function tests).

IV. *Source of Tertian Malaria.*—Malarial blood may be obtained from: (a) patients undergoing

therapeutic malaria treatment, (b) patients having malaria and (c) distant hospitals via special messenger or air mail.

V. *Methods of Inoculation.*—The malaria infected blood may be administered by any one of the following routes: (a) subcutaneous, (b) intramuscular or (c) intravenous.

The subcutaneous route is safer, the incubation period is longer (from seven to twelve days) and the resulting paroxysms are more likely to be of the tertian type (fever every other day) thus permitting rest intervals. A site at the interscapular region of the recipient is prepared with iodine and alcohol. About 5 cc. of the donor's blood is injected as quickly as possible to avoid clotting. The needle is pushed into various areas from the midpoint of a circle so as to spread the blood over a larger area for more rapid absorption.

The technic for the intramuscular route is essentially the same as that for the subcutaneous method.

If given intravenously, several cubic centimeters of blood are injected into a vein in the cubital fossa. There is (a) a remote danger of embolism, (b) a short incubation period (from one to seven days), (c) an irregular prodromal fever if the blood is incompatible, or the paroxysms are more likely to be quotidian (daily fever) with subsequent exhaustion in some patients.

The patient is informed of the symptoms of a successful inoculation and is advised to enter the hospital for care as soon as the first paroxysm develops.

VI. *Failure of Inoculation.*—Failure may be due to: (1) immunity to a specific strain of plasmodia, (2) previous attacks of malaria (especially in Negroes) and (3) drugs in blood stream (arsenic, bismuth and quinine).

VII. *Care During Active Malaria.*—The patient is put to bed and the temperature is taken every three hours. There is no need to isolate the patient and he is allowed to have from ten to sixteen paroxysms before steps are taken to interrupt the treatment. He may be up and about between paroxysms; if weak and exhausted he should stay in bed. A light diet is prescribed. During the fever, alcohol sponge baths are indicated. The chills require extra blankets and hot water bottles. During the sweating stage pajamas should be changed frequently to avoid respiratory complications.

The following routine examinations are made in every case:

a. Daily blood pressure examination. If the systolic pressure falls below 75 the malaria is stopped immediately by intravenous injections of quinine dihydrochloride.

b. Red cell count, hemoglobin and urine examinations are made three times weekly.

c. Blood urea examination. If the blood urea rises to 75 mgms. per 100 cc. of blood the malaria is stopped immediately.

d. Daily examinations of the sclera for jaundice. Daily palpation of the spleen for enlargement. Van

den Bergh test twice weekly. Rupture of the spleen is very rare. Jaundice may occur either as a complication of the malaria itself (hemolytic crises) or from a flare-up of a latent syphilitic hepatitis.

e. Stop disease at once if the patient develops (a) sudden drop in temperature, (b) cardiac decompensation (cyanosis or edema), and (c) jaundice, bilious vomiting and excessive enlargement of the spleen. If temperature exceeds 106 F. reduce at once by giving 1 grain quinine three times a day.

VIII. *Treatment to Terminate Malaria.*—A saline purge is the initial treatment. If the patient gives no history of quinine sensitization, treatment with this drug is commenced as soon as the patient has the requisite number of chills (from ten to sixteen). Capsules of quinine sulphate or the bisulphate, 5 grains, are given three times daily for the first week and then once daily for fourteen days. The patient is usually strong enough to leave the hospital after three days of quinine therapy.

If the patient is sensitive to quinine (showing urticaria or angioneurotic edema), atabrin, $\frac{1}{2}$ grain three times daily after meals, may be given. A yellow tinting of the skin should not be mistaken for jaundice. Plasmochin, $1\frac{1}{2}$ grains three times daily, should be used in the cases with more serious complications when quinine is too slow in its action.

IX. *Routine Postmalaria Care.*—After malaria treatment the patient is weak and anemic and usually loses some weight (average 8 pounds). Before discharge from the hospital, the weight, red blood cell count and hemoglobin and a blood smear for malarial organisms should be made. The patient is given a high vitamin diet and an iron tonic (iron and ammonium citrate capsules). In four weeks the follow-up treatment with tryparsamide, bismuth and iodides should be started.

SUGGESTED ROUTINE FOR THE ADMINISTRATION OF FEVER THERAPY BY PHYSICAL AGENTS

In private practice the choice of the most suitable agent for the production of artificial fever is the problem of the physician in charge of the patient. The questions of (1) period of hospitalization, (2) comfort to the patient, (3) control of the rising body temperature and (4) the possibility of correlating chemotherapy with fever therapy must be given serious consideration.

Artificial fever (hyperthermia) by means of an approved fever cabinet with a recognized technical routine offers the physician a method by which there is the least element of risk, greatest comfort to the patient and a minimum of hospitalization. Each treatment is a one day treatment with an overnight stay in the hospital. The intervals between treatments may be used for vigorous chemotherapy. In the hands of trained personnel, the height of the fever curve (from 104 F. to 106 F.) and the length of its duration (usually from three to six hours) can be maintained and controlled with remarkable exactness.

The routine for the administration of artificial fever by means of the fever cabinet and electromagnetic induction as practiced at the Firmin Desloge and Evangelical Deaconess hospitals is outlined as follows:

I. Clinical Indications:

1. Syphilis.
 - a. Primary and secondary syphilis?
 - b. Wassermann-fast cases and ocular syphilis.
 - c. Tertiary and post-tertiary (neurosyphilis).
 1. Cerebrospinal syphilis.
 2. Tabes dorsalis.
 3. Taboparesis.
 4. Dementia paralytica (general paresis).
 5. Other phases of neurosyphilis as outlined for malarial therapy.
2. Gonorrhea.
 - a. Acute gonorrheal arthritis.
 - b. Chronic gonorrheal arthritis?
 - c. Other gonorrheal infections.
 1. Gonococcic ophthalmia.
 2. Gonococcic salpingitis.
 3. Gonococcic epididymitis.
 4. Gonococcic prostatitis.
3. Arthritis.
 - a. Atrophic arthritis (rheumatoid).
 - b. Hypertrophic arthritis (osteo-arthritis)?
4. Chorea minor.
5. Bronchial asthma.
6. Bronchiectasis.
7. Multiple sclerosis.
8. Other diseases.
 - a. Undulant fever.
 - b. Rheumatic carditis.
 - c. Parkinsonian syndrome.
 - d. Ocular diseases.
 1. Corneal ulcers.
 2. Acute iritis.

II. Contraindications:

1. Generalized arteriosclerosis (50 years of age—upper limit).
2. Advanced organic brain disease.
3. Organic heart disease.
 - a. Only when decompensated.
 - b. Any stage of heart block.
4. Diabetes.
5. Advanced interstitial nephrosis.
6. Acute nephritis.
7. Organic nerve disease resulting in complete anesthesia.
8. Pregnancy?
9. Marasmic patients.
10. Demented patients.

III. Complete physical examination and laboratory tests as outlined for malarial routine.

IV. Prefever routine.

NURSING CARE OF THE ARTIFICIAL FEVER PATIENT

I. Prefever routine:

a. Day before treatment.

1. Salt (NaCl) intake: The patient should be instructed to take from five to eight grams of NaCl either in tablet or liquid form during a twelve hour period of time. (No NaCl is given during the fever treatment.)
2. Fluid intake: The patient is requested to force fluids above the normal intake the day before the treatment. Several thousand cubic centimeters (from 2000 to 3000) of water is sufficient.
3. Gelatine (Knox): The patient is instructed to take four one-quarter ounce packages of gelatine according to the following directions: Mix a $\frac{1}{4}$ ounce package of gelatine in a glass of ice cold tomato juice and drink before the mixture becomes too hard. Do this four times during this particular day.
4. Enemas: Evening before treatment. Certain types of cases are given a medicated enema to be retained in the rectum as long as possible.

II. Fever Routine:

a. Day of treatment.

1. A soap suds enema is given the first thing in the morning.
2. Light breakfast.
3. Taken to fever cabinet.
 - a. Sedative: The following sedative is given by hypodermic as soon as the patient becomes restless: Spasmalgin (LaRoche) one ampoule, contents are as follow: papaverine, gr. $\frac{1}{3}$; pantopon, gr. $\frac{1}{6}$; atrinal, gr. $\frac{1}{60}$. (Add another $\frac{1}{6}$ gr. of pantopon to above ampoule.)
 - b. Repeat the above sedative in about two or three hours only if absolutely necessary, that is, if the patient becomes extremely restless.

b. At the termination of heat.

1. When patient's temperature drops to 101 F. he is given routine nursing care such as sponging, drying and gradual cooling under lightweight blankets.
2. Several hours later 500 cc. of a 5 or 10 per cent dextrose in physiologic saline solution is administered intravenously.

EMERGENCIES

A. Indications for the interruption of fever treatment follow:

1. Heat exhaustion (early sign is circumoral pallor with a highly flushed face).
2. Cyanosis.

3. Pulse rate.
 - a. Pulse rate of 170 and over.
 - b. Irregular, soft and thread-like pulse.
4. Violent delirium.
5. Convulsions or generalized tremors.
6. Syncope.

B. Measures to be started immediately when these signs are noticed by the nurse follow:

1. Notify the physician in charge.
2. Patient should be entirely uncovered and
 - a. Cold air blown over naked body by electric fan.
 - b. Small chunks of ice or ice water should be applied to the skin by brisk rubbing until a lowering of rectal temperature to 101 F. is reached.
 - c. CO₂ and O₂ gas mixture (70 per cent to 30 per cent) given by inhalation through face mask.

C. Desperate situation:

1. Intravenous injections of:
 - a. Caffeine sodiobenzoate.
 - b. Digitalis.
2. Intracardiac injection of adrenalin.
3. Stimulation of skin by friction.
4. Artificial respiration.

COMMENTS

Fever therapy by malaria or fever cabinet was first used in the treatment of general paresis. While the present day use of malaria is practically confined to treating post-tertiary syphilis, the use of the fever cabinet has spread to the treatment of a wide variety of diseases. In using malarial therapy, chemotherapy (tryparsamide) must wait until the malarial chills have been stopped. With the use of the fever cabinet chemotherapy in the form of arsenicals and bismuth may be administered in the

intervals between the fever treatments. It is now the consensus of opinion with all medical authorities that fever therapy properly correlated with chemotherapy is the treatment of choice for general paresis.

In the treatment of tabes dorsalis, locomotor ataxia, in which there is a more or less degeneration in the posterior columns of the spinal cord, fever treatment and chemotherapy play a somewhat lesser role. The resulting crises and pains are oftentimes amenable to this therapeutic measure. Some patients with transitory incontinence regain control of urinary bladder function. Whether patients ever recover from ataxia is a much debated question. It is a frequent recommendation that fever therapy be tried for the relief of intractable tabetic pains before cordotomy is contemplated.

Cerebrospinal syphilis is really a tertiary syphilis with the usual meningitic manifestations as distinguished from parenchymatous post-tertiary involvement known as general paresis and tabes. While the trivalent arsenicals and the heavy metals of bismuth and mercury usually bring good results, there are occasional cases refractory to chemotherapy alone. These cases respond satisfactorily when therapeutic fever is combined with chemotherapy.

The use of therapeutic fever in the treatment of the primary chancre and the secondary stage of syphilis has been investigated by a number of clinicians. It is now the consensus of opinion of these investigators that it is unnecessary to subject these patients to fever therapy when chemotherapy alone will produce satisfactory clinical results.

In cases with persistent Wassermann positive blood reactions and those refractory to vigorous chemotherapy, it has been found that a large percentage of them will result in negative serologic tests when a series of fever treatments are rationally combined with chemotherapy.

SYPHILIS OF THE BONES AND JOINTS

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Syphilis of bone, as of skin and the other soft tissues, possesses a varied repertoire. It runs a gamut of clinical histrionics. On occasion it may be present as a harmless appearing exostosis; on another it may simulate the most dangerous kind of bone tumor. The fundamental lesion, a chronic inflammatory reaction, is rather simplified but the diverse manners in which host and aggressor adapt themselves to each other produce the numerous lesions which vary in degree and extent.

CONGENITAL SYPHILIS

Early Congenital Lesions.—Syphilis of the bone may generalize itself quite as extensively as do the skin lesions. It may become manifest in the earliest as well as the later decades of life. There is little or no difficulty in recognizing the "little old man" infant born with the congenital syphilitic stigmata. Unfortunately from a diagnostic standpoint, the victim does not always come marked so obviously. If the classical textbook pictures of medical ills were common, the course of therapy for the doctor could be charted as definitely as were the voyages of the old mariners guided by the north star. But

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Fig. 1. Osteochondritis. Congenital syphilis. Involved areas of distal ends of radius and ulna quite obvious.

the sad observation is often true that when the classical textbook picture turns up it is considered worthy of special presentation.

Bone lesions in the congenital syphilitic person may appear in the first or second month of life or may remain latent until adult age is attained. The infantile form expresses itself often as an osteochondritis or epiphysitis (fig. 1) of the long bones in which the epiphyseal line is widened and has a moth-eaten appearance. Periostitis (fig. 2), a widening of the shaft with subperiosteal callous formation, as well as osteitis (fig. 3 A, B) and osteomyelitis (fig. 3 C, D) may be seen as an accompaniment. Clinically, there may be the obvious "paralysis" of the affected extremity; the infant may be irritable and cry when handled. The swelling at the end of the long bone may be visibly apparent or may be detected only by palpation. The lesion must be differentiated roentgenologically from rickets and scurvy. The diagnosis is established by the summation of the history, the presence of skin lesions, "snuffles" and other stigmata, the roentgenogram and the Wassermann reaction. The Hutchinson triad—the notched peg-shaped central incisors of



Fig. 2. Periostitis of long bones. Congenital syphilis.



Fig. 3 A, B. Osteitis (gummata of skull). Congenital syphilis. C. Active osteomyelitis of tibia. D. Healed.

second dentition, the deafness resulting from labyrinthine involvement and interstitial keratitis—appears in later childhood. From the first to third year syphilitic dactylitis (fig. 4) may be encountered appearing in either the fingers or toes. There is a spindle-shaped swelling which on roentgenological analysis is seen to include both bone destruction and bone proliferation. In this affection tuberculosis must be ruled out. Osteochondritis of the nasal septum produces the saddle nose.

Late Congenital Lesions.—The most common form of latent congenital bone syphilis, the changes of which may occur in the decade between 15 and 25 years, is the saber shin (fig. 5 A). This combination of anterior bowing and diffuse thickening of the shaft with exostosis or surface roughening may be classified as an ossifying periostitis or osteitis.



Fig. 4. Syphilitic dactylitis. Congenital syphilis. One type of polyarthritis.

A similar process is reflected in the gross thickening and surface roughening of the inner third of the clavicle. Besides these osseous residua, active lesions may be encountered also in the late congenital stage and sometimes are seen concurrently with the appearance of interstitial keratitis. A number of such instances may be detected in tables

may occur in this late congenital group, they are among the rare manifestations.

The records of the St. Louis Children's Hospital were reviewed as far back as 1920. Those patients with congenital syphilis whose bone lesions were a part of the clinical picture at the time of admission were selected and data are shown in table 1. The

Table 1. *Syphilitic Bone Lesions (Congenital). From St. Louis Children's Hospital Service*

Name	Age	Sex	Race	Chief Complaint	Lesion	Site	Blood Wassermann	Syphilitic Stigmata
R. G.	9Y	F	W	Known case	Periostitis	Left tibia	4 plus	Syphilis of cornea Keratitis; syphilis of skin
L. H.	12Y	F	W	Sore on leg	Periostitis	Right and left tibiae	4 plus	
L. I. H.	11M	F	W	Underweight	Periostitis	Left ulna, radius and humerus	4 plus	Splenomegaly
R. C.	2M	M	W	Bleeding from lips; generalized pain	Osteomyelitis	Right ulna	Negative	"Snuffles" and rhagades
E. McK.	10Y	M	W	Leg ulcer	Osteitis	Right tibia	4 plus	Skin lesions
G. McK.	13Y	F	W	Painful wrist	Osteitis	Right ulna	4 plus	
M. M.	7Y	F	W	Sores on leg	Osteitis	Left tibia and femur	4 plus	
L. S.	17Y	F	W	Sore on leg	Chronic osteomyelitis	Right tibia and skull	4 plus	
J. R. M.	2M	M	W	Painful arm	Osteitis and pathological fracture	Right humerus	4 plus	
C. R.	2M	M	N	Swollen shoulder	Periostitis epiphysitis	Both humeri	4 plus	Skin lesions
J. G. Jr.	2M	M	N	Swollen arms	Osteitis	Both humeri, both ulnae and radii	4 plus	Skin rash
G. M.	12Y	M	W	Swollen right leg	Osteitis	Right tibia	4 plus	Craniotabes
B. J.	3M	F	N	Pneumonia	Osteochondritis	Rib	4 plus	
K. K.	12Y	M	W	Swollen knee	Synovitis	Knee joint	Negative	
B. E. C.	3W	M	N	Swollen foot	Epiphysitis	Left tibia, left and right radius	Negative	
J. A. Y.	2M	F	W	Skin rash	Periostitis	Tibiae	4 plus	Skin lesions
L. M. W.	2M	F	N	Swelling of hands and legs	Osteitis, periostitis dactylitis	Radius, ulna, tibia, fibula and femur	4 plus	
B. J. S.	8M	M	W	Irritable cough and fever	Periostitis	Humeri, tibiae and femur	4 plus	Skin lesions
C. H.	2M	M	W	Nonuse of left arm	Osteitis	Left ulna and humerus	4 plus	
D. H. McM.	6W	F	W	Swelling of legs	Epiphysitis periostitis	Tibiae, femora and humerus	Negative	Interstitial keratitis
J. D.	13Y	M	W	Swelling of thigh	Periostitis, osteomyelitis	Right femur, left radius	Negative	
V. G.	2Y	F	W	Swelling of leg	Osteitis	Right tibia	Negative	
B. C.	7Y	F	W	"Drags her limbs"	Periostitis	Both tibiae	4 plus	
B. H.	7Y	F	W	Swelling of legs	Periostitis	Both tibiae	4 plus	
E. L.	10Y	M	W	Infection of legs	Multiple osteomyelitis	Both tibiae, left humerus, inferior maxilla	Negative	Interstitial keratitis
I. C.	7Y	F	N	Ulcer of forearm	Osteomyelitis	Both ulnae, left femur	Negative	
F. S.	3M	M	N	Swelling of arm	Periostitis	Long bones	4 plus	Interstitial keratitis
E. S.	13M	F	W	Broken left elbow	Periostitis	Left humerus	Negative	
W. F. N.	11Y	M	N	Skin ulcers	Osteitis, epiphysitis	Both tibiae, left fibula and phalanx	Negative	Interstitial keratitis
M. A. S.	3W	M	W	"Swelling of leg"	Periostitis	Right tibia	4 plus	
F. Z.	4M	M	W	Known case	Osteitis, epiphysitis	Long bones	4 plus	
A. T.	4½M	M	N	"Snuffles"	Osteitis	Long bones	4 plus	
D. J.	4M	M	W	Known case	Osteitis, epiphysitis	Long bones	4 plus	

1 and 3. Among these active lesions are periostitis involving most frequently the tibia, fibula, radius and ulna; a symmetric hydrarthrosis which is painless, without limitation of motion and negative to roentgen ray examination, and a type of arthritis leading to ankylosis. Epiphyseal enlargement in older persons with congenital syphilis and the occasional retardation of growth of the shaft as the child develops are of particular orthopedic interest if such shortening involves the lower extremity. Such unilateral inequality may be the etiological basis of a later postural scoliosis. While bone gummas (fig. 3 A, B), spondylitis and even Charcot joints

chief complaint on admission, the age of the child at which the bone lesion became clinically obvious, the type of bone lesion and the sites and extent of involvement may be noted with interest. The data on the latter two cannot be considered as comprehensive since routine roentgenological examination of the whole skeleton was not carried out in every instance. It is interesting to note also that the Wassermann reaction was negative in some cases of rather frank syphilitic osseous lesions.

In table 2 it is seen that the superficial bones such as the tibia and ulna show the highest incidence of clinically manifest lesions. While trauma, so far

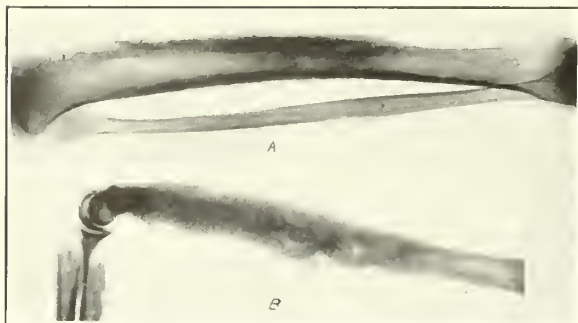


Fig. 5 A. Periostitis (saber shin). Late congenital syphilis.
B. Osteomyelitis of the humerus. Acquired syphilis.

as these bones are concerned, plays a rather suggestive precipitating role in the history of the acquired cases, it is questionable whether trauma

Table 2. Congenital Lesions. Incidence of Involvement of Particular Bones

Site	Number	Percentage
Tibia (fibula)	21	34
Ulna (radius)	13	21
Femur	10	16
Humerus	13	21
Knee joint	1	1.5
Rib	1	1.5
Skull	1	1.5
Inferior maxilla	1	1.5
Tarsal phalanx	1	1.5
White	24 (73%)	
Colored	9 (27%)	

can be ascribed properly as the cause in the infantile cases. Certainly lesions in these superficial bones are detected much more readily as such.

ACQUIRED SYPHILIS

Early Syphilis of Bone.—The osseous lesions of acquired syphilis are seen more frequently in the



Fig. 6. Localized (gummatous) osteitis of tibia. Acquired syphilis.



Fig. 7. Charcot joint. Ankle. Acquired syphilis.

late stage. There is an interesting type of periostitis however which occurs in the secondary stage the roentgenological examination of which may be negative. It is a definitely localized lesion situated on the shafts of the long bones, usually the tibia. There is a circumscribed doughy elevation of a noninflammatory character which has an exquisitely tender point on palpation. Such lesions probably occur on other long bones but escape detection. Secondary syphilis has a number of generalized bone symptoms which have no known pathological background. Ostealgia refers to indefinitely localized bone pains and probably includes the diffuse type of headaches encountered in this stage. Sternalgia and pleurodynia are more specific designations. Tenosynovitis, bursitis and the arthritides are infrequent manifestations. Myositis in this stage presents the usual clinical findings of swelling, tenderness and pain on contraction and relaxation. While myalgia is a common complaint of early syphilis it has no specific features or definite background.

Late Syphilis of Bone.—Compared with persons with congenital syphilis, the past history of a patient with the bone lesions of late syphilis opens up a longer vista along which may be spotted the syphilitic signposts. Their chief complaints are more informative and pointed. In the case of skull involvement there is cephalalgia which may be intermittent, nocturnal and sharply regional. In acute periostitis and osteitis the ostealgia is boring in character, frequently nocturnal, relieved by movement and becomes more persistent when the patient is warm in bed. Late periostitis and osteitis (fig. 6) may be aggravated by trauma and progress to involve the adjacent soft tissue and skin with eventual breakdown and chronic ulcer formation.

Syphilitic osteomyelitis (fig. 5 B) often presents a clinical picture distressingly similar to the pyogenic form of osteomyelitis. This is especially true



Fig. 8. Charcot hip, right. Old subtrochanteric transverse fracture with extensive calcific overgrowth on left. Acquired syphilis.

if, following breakdown of the syphilitic lesion, secondary infection has occurred. In the uncomplicated form there is swelling of the bone with pain of varying degree. The lesion may appear noninflammatory in character and may leave the patient devoid of constitutional reaction. These observations aid in the differential diagnosis. There is in this lesion, as in the one which it simulates, an involvement of all bone layers from the periosteal sheath to the marrow substance as well as the adjacent soft tissue. Gummatous changes are common and sequestrum formation may occur. The latter is usually the only indication for surgical intervention. Occasionally attention is focused upon the lesion when the patient complains that while walking upstairs his "leg bent between the ankle and the knee."

Lesions of the Joints.—Good functional use of a syphilitic joint is the usual clinical finding. Arthralgia is more common to the earlier syphilitic phases. A mild arthritis is observed occasionally in the secondary stage but is of minor significance. Hydrarthrosis, a simple effusion with noninflammatory changes, may occur and recur during the course of syphilitic infection. In general, syphilis of the joint occurs in the third stage and is regarded as a tertiary lesion. There are instances in the other stages of the disease, however, in which the joint may be invaded secondarily from a neighboring periostitis, osteitis or osteomyelitis. A common late arthritic involvement is the synovial type in which there is fluctuation and increase in the periarticular tissue and a hyperplastic synovial membrane. Clinically it presents the picture of chronic synovitis. This eventually may become a chronic hydrops. The gummatous osteoarthritis involves the larger joints such as the knee and is not always bilateral. There is enlargement with a tense, shiny skin devoid of inflammatory redness. While this lesion may become quite extensive with gummatous

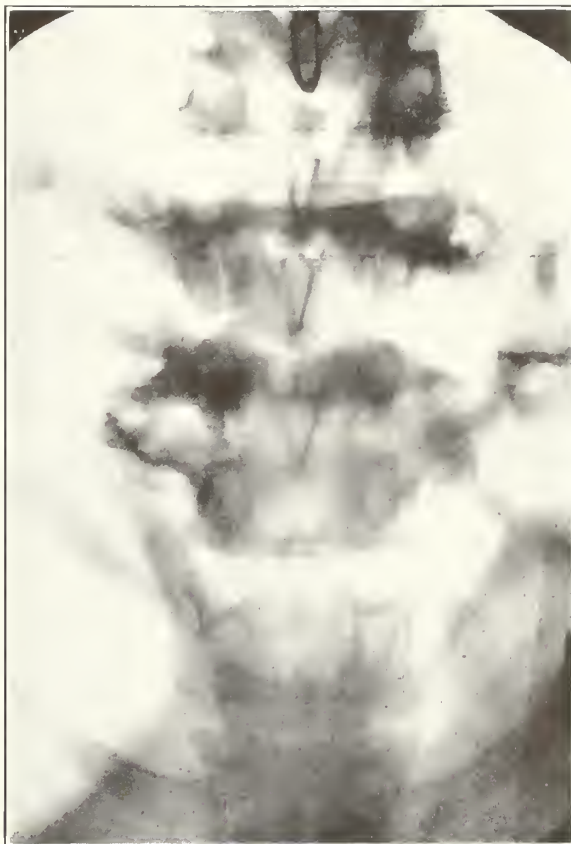


Fig. 9. Charcot joint lumbar spine. Massive destruction of lumbar vertebra with loose bodies on either side. Acquired syphilis.

involvement of the joint and periarticular tissues there may be little or no impairment of mobility. Again there is little constitutional reaction. Ankylosis does not occur unless secondary infection intervenes.

The Charcot joint (figs. 7, 8 and 9) is a neuroarthropathy which occurs during the stage of cord lesions or tabes dorsalis. It may develop rather abruptly and without any definite appreciable cause. The patient may complain that his knee seems to be getting larger and gives way under him; otherwise he is not bothered. The swelling and laxity may progress until there is complete disintegration of the joint surfaces with massive formation of bone and cartilage. The ligamentous support is involved later leaving a completely flail and occasionally a dislocated joint. This affection may involve any of the larger joints as well as the smaller joints of the feet and hands. The Argyll Robertson pupil, loss of knee reflexes, Romberg's sign and diminished sensation of the lower extremities give evidence of cerebrospinal syphilis.

The following tabulation presents cases of syphilitic bone lesions selected from admissions to the Barnes and allied hospital services from 1920 to the present.

Table 3. *Syphilitic Bone Lesions. Barnes and Allied Hospitals*

Name	Age	Sex	Race	Chief Complaint	Lesion	Site	Duration Complaint	Blood Wasser- mann	Other Lesions
S. M.	44	M	W	C. N. S.	Charcot joint	Ankle	Chronic	4 plus	Tabes dorsalis
O. W.	36	F	N	Back pain	Charcot joint	Right knee	Chronic	4 plus	Taboparesis
M. W.	24	F	N	Painful leg	Periostitis	Both tibiae	Chronic	4 plus	Interstitia keratitis
C. R. J.	16	M	W	Painful eye	Periostitis	Left tibia	Chronic	4 plus	Interstitia keratitis
W. M. W.	16	F	N	Known case	Periostitis	Saber shins	Chronic	4 plus	Hutchinson teeth
A. Z.	20	M	W	Known case	Periostitis	Saber shins	Chronic	4 plus	
G. W.	38	M	N	Painful swollen knee	Osteomyelitis	Left femur	Chronic	4 plus	
A. M.	38	F	N	Pain in shoulder and back	Osteitis	Right scapula sacrum	Chronic	4 plus	
H. S.	32	M	N	Sore on leg	Osteitis	Right tibia	Chronic	Negative	
J. P.	35	M	W	Painful right knee	Osteomyelitis	Right tibia path. fracture	Chronic	4 plus	
H. Y.	54	F	N	Nasal symptoms	Periostitis	Right tibia	Chronic	4 plus	Perforated septum
D. D.	45	F	N	Headaches	Periostitis	Frontal bone	Chronic	4 plus	Aortitis
J. N.	34	M	W	Lump on neck	Gumma	Right sterno- clavicular joint	Chronic	4 plus	
J. D.	17	M	N	Known case	Periostitis	Right tibia	Chronic	Negative	Hutchinson teeth
B. W.	29	F	N	Swollen joint	Periostitis, osteitis	Inferior maxilla, humerus	3 yrs.	4 plus	
L. H.	46	F	N	Swelling on fore- head, head pain	Osteitis, gumma	Skull frontal bone	6 mos.	4 plus	
B. S.	21	M	N	Multiple joint pains	Osteitis	Right ulna	Chronic	4 plus	
C. H.	30	F	W	Eye complaints	Osteitis	Nasal	Chronic	Negative	
P. R.	28	F	N	Ulcers of left arm	Multiple gummas	Left humerus	Chronic	4 plus	
S. E.	39	F	W	Pain and swell- ing, left leg	Periostitis	Left tibia	3 yrs.	4 plus	C. N. S. symptoms
L. McN.	43	M	N	Pain in leg	Periostitis	Left tibia	3 mos.	4 plus	
A. B.	24	M	N	Painful joints	Osteitis	Left tibia and fibula	Chronic	4 plus	C. N. S. symptoms
W. S.	56	M	W	"Weakness of hips"	Osteitis	Right tibia	Chronic	Negative	Tabes dorsalis
F. S.	51	M	W	Swollen left ankle	Charcot joint	Left ankle	Chronic	4 plus	Taboparesis
R. S.	56	M	W	Left-sided limp	Charcot joint	Left hip joint	Chronic	Negative	Taboparesis
P. N.	47	M	N	Pain and stiff- ness left thigh and swollen knee	Osteitis and periostitis	Left femur	2 mos.	4 plus	
O. L.	61	M	W	Swelling of neck	Gumma	Sterno clavicular joint	Several months	Negative	
S. F.	57	F	W	C. N. S. symp- toms	Arthritis, osteomyelitis	Sacro-iliac joints, right pubis	Chronic	2 plus	
G. J. B.	74	M	W	Tumor of leg	Periostitis	Both bones of leg	Chronic	Negative	
D. P. B.	47	F	W	Ulcer of forearm	Chronic osteomyelitis	Both bones of forearm	9 yrs.	4 plus	
C. E.	61	M	W	Fracture femoral neck	Periostitis, osteitis	Inferior public ramus, right sacro-iliac joint	Chronic	4 plus	
M. K. T.	65	F	W	Leg ulcers	Osteomyelitis	Tibiae and fibulae	Chronic	Negative	
H. O.	70	M	W	Toe ulcer	Osteomyelitis	Tarsal phalanges	Chronic	Negative	
H. C. C.	76	M	W	Disabled ankle	Osteomyelitis	Left tibia and fibula, right ulna	Chronic	4 plus	
M. J.	48	M	W	Swollen sore ankle	Periostitis, osteitis	Left tibia, subluxation of ankle	Chronic	4 plus	
H. C. C.	76	M	W	Leg ulcers	Osteitis	Left tibia, right ulna	1 mo.	4 plus	
H. A.	70	M	W	Sore foot	Periostitis, osteomyelitis	Right metatarsal, 2nd toe left, 2nd phalanx	Several weeks	Negative	
B. P.	42	F	N	Headache	Osteitis	Skull	1 yr.	3 neg. 1 pos.	
A. H.	33	M	W	Blindness, right eye	Osteitis	Orbital bone (r)	6 mos.	4 plus	Paralysis C 3, 4 & 6
G. E.	25	M	N	Pain in chest	Gumma	Sternum	2 wks.	4 plus	
J. J. B.	57	M	W	Ulcers on leg	Osteitis	Tibia, right	8 yrs.	Negative	
L. H.	22	M	N	Swollen finger	Osteitis	3d R. metacarpal	3 mos.	Negative	
P. M.	45	M	W	Sore left eye	Osteomyelitis, periostitis	Frontal bone, both tibiae	6 mos.	4 plus	
G. M. B.	66	M	W	Swelling of leg	Osteomyelitis, periostitis	Tibia, right	8 yrs.	Negative	
L. R.	26	F	N	Swollen foot	Osteomyelitis	1st metatarsal, left	1 mo.	?	
A. L. M.	40	F	N	Ulcer forehead	Gumma	Frontal bone	6 mos.	4 plus	Syphilis of pharynx, syph- ilic heart disease
W. L. L.	46	M	N	Ulcer leg, left	Periostitis	Both tibiae	2 wks.	4 plus	
P. R. W.	35	F	W	Rib sinus	Gumma	Ribs 8, 9, 10, right	2 yrs.	4 plus	Gumma liver
L. M. W.	65	M	W	Ulcer leg	Osteomyelitis	Tibia, right	7 mos.	Negative	
R. J. H.	42	M	W	Ulcer forehead	Osteomyelitis	Skull	1 yr.	4 plus	Cardiac valvular disease
A. W.	45	M	N	Ulcer left leg	Periostitis	Left tibia	8 mos.	Negative	
C. N. S.	50	M	W	Inability to move legs	Charcot	Spine	7 yrs.	4 plus	Tabes dorsalis

Table 3. Syphilitic Bone Lesions. Barnes and Allied Hospitals (Continued)

Name	Age	Sex	Race	Chief Complaint	Lesion	Site	Duration Complaint	Blood Wassermann	Other Lesions
E. M. W.	21	F	N	Swelling of forearm	Osteitis	Right radius	1 1/4 yrs.	2 plus	Bone transplant
G. I. G.	46	F	W	Headache	Osteitis	Skull	8 yrs.	Negative	C. N. S. lues
C. E. S.	48	M	W	Painful right leg	Periostitis	Tibia	3 mos.	Negative	C. N. S. lues
M. B.	29	F	N	Headache	Lues	Parietal bone, turbinate	3 days (headache)	Negative	
C. F. S.	30	M	W	Backache	Syphilis	Vertebrae, T 4, T 5	4 mos.	4 plus	
J. L.	68	M	W	Leg ulcers	Osteomyelitis.	Rib.	4 yrs.	4 plus	
L. B. T.	32	F	W	Leg ulcers	Osteitis	Tibiae	40 yrs.		
L. H.	43	F	N	Painful shoulder	Lues	Tibiae	18 yrs.	2 plus	
H. E. E.	48	M	W	Epileptic attacks	Osteitis	Right scapula	Chronic	4 plus	
R. H.	54	M	N	Headache	Syphilis	Skull	Chronic	Negative	
B. L. W.	40	F	N	Pain in jaw and right shoulder	Syphilis	Inferior maxilla, clavicle	3 yrs.	4 plus	
A. M. M.	32	F	W	Asymptomatic	Periostitis	Tibiae	Chronic	Negative	
C. B. M.	33	F	W	Swollen foot	Periostitis, Charcot joint	Right femur, left tarsal bones	Chronic	Negative	Tabes
E. D. R.	68	M	W	Asymptomatic	Syphilis	Skull		4 plus	C. N. S. lues
J. H.	53	M	N	Vertigo	Periostitis; syphilis	Tibiae, skull	Chronic	Negative	Aortic insuff.
W. L. O.	26	F	N	Pain in head and shoulders	Periostitis	Scapula	Chronic	2 plus	
L. M.	45	F	N	Epilepsy	Periostitis	Skull	8 mos. (headaches)	4 plus	C. N. S. lues
I. B. K.	18	F	W		Syphilis	Nasal bone, congenital	Chronic	Negative	
R. M. D.	58	F	W	Pain in back	Syphilis	Vertebra, T 11	Chronic	4 plus	Aneurysm aorta
S. C.	53	M	W	Convulsions	Gumma	Skull	5 days	4 plus	C. N. S. lues
R. S. K.	29	F	W	Headache	Syphilis	Skull	1 yr.	4 plus	
L. McN.	43	M	N	Painful leg	Osteomyelitis	Left leg	1 1/2 yrs.	4 plus	
A. B.	26	M	N	Painful legs	Osteitis	Both tibiae	4 mos.	4 plus	Skin lesions, general paralysis of insane
F. S.	40	F	N	Tumor clavicle	Gumma	Clavicle	3 mos.	4 plus	
J. B.	40	F	N	Pain left shoulder	Osteitis	Both humeri, tibia, fibula	5 yrs.	4 plus	
A. J. W.	31	M	W	Fracture pelvis	Gumma	Right pubis	10 wks.	3 plus	

In reviewing the histories of these cases, trauma was frequently mentioned in association with the onset of clinical manifestations of these bone lesions of acquired syphilis. In view of the contention that there is a so-called mutually exclusive relationship between syphilis of the bones and syphilis of the nervous system, lesions of the nervous system being rare in those who had developed syphilis of bone and vice versa, it is interesting to note the number of cases tabulated which manifested the simultaneous presence of lesions in both systems.

Table 4. Incidence of Involvement of Particular Bones. Adult Group, Barnes and Allied Hospitals

Site	Number	Percentage
Tibia (fibula)	31	33
Ulna (radius)	5	5
Femur	2	2
Humerus	4	4
Knee joint	1	1
Hip joint	1	1
Ankle joint	2	2
Tarsal joint	3	3
Sternoclavicle	2	2
Sacro-iliac	2	2
Rib	2	2
Scapula	3	3
Skull	16	17
Inferior maxilla	2	2
Turbinate	1	1
Pubis	3	3
Sacrum	1	1
Nasal	2	2
Metatarsal	2	2
Tarsal phalanx	1	1
Metacarpal	1	1
Sternum	1	1
Spine	3	3
Clavicle	2	2

These figures apply only to the particular group considered. They cannot be considered generally applicable so far as the incidence of syphilitic bone lesions is concerned for in general only those lesions are noted which were symptomatic at the time of admission. Routine roentgenograms of all bones of each patient were not obtained.

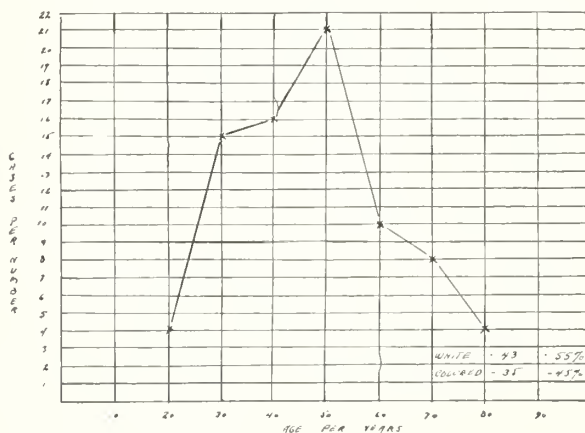


Fig. 10. Incidence of syphilitic bone lesions in relation to age.

DISCUSSION

The characteristics of bone syphilis do not follow a standardized pattern. Their propensity to simulate various types of bone tumor and other osseous

lesions creates a diagnostic problem. In children the lesions may mimic rickets, scurvy, tuberculosis, osteomyelitis (pyogenic) and bone sarcoma. The varied syphilitic stigmata including skin lesions, roentgenogram, the serological tests and knowledge of the child's antecedents are valuable aids. In adult cases the history of a primary sore, the history or presence of other skin lesions, the positive Wassermann reaction, the sometimes vague symptomatology accompanying extensive pathological changes with little constitutional reaction are significant. The roentgenogram considered in itself cannot be accepted as diagnostic. The Wassermann reaction may or may not be positive. Pain of nocturnal occurrence may accompany lesions of both the bones and joints. Joints of syphilitic involvement retain their mobility. The fluid of the affected joint, generally not present in excessive amounts, may show a strongly positive Wassermann reaction.

Most syphilitic bone lesions do not call for surgical intervention. The unwanted complication of secondary infection often is caused by ill advised exploration. The orthopedic surgeon's chief concern is the prevention of deformity and in these instances it is accomplished by the early diagnosis of the infection followed by adequate antisyphilitic treatment. In the clinical investigation of bone lesions vague as to symptomatology and etiology, the Wassermann reaction should be included always and if doubt persists a provocative dose of arsphenamine or a therapeutic test in the form of a course of antisyphilitic treatment should be given.

If a bone lesion has progressed to the destructive stage with deformity and involves a lower extremity so that locomotion is impeded, the mode of correction eventually may become surgical. A Charcot hip joint, for example, which cannot be stabilized sufficiently by a walking caliper may be controlled best by an operation for inducing osseous fusion. The same applies to the knee or ankle. Fusion of joints under such circumstances is made more difficult because of the eburnated ends of the involved bones. In the instance of the hip, in addition to the arthrodesing procedure it may be necessary to drive a nail through the neck and head of the femur into the acetabulum. In the instance of the knee, the eburnated ends may have to be drilled or various types of internal fixation employed ranging from nail and metal appliances to bone graft implantation. Such procedures should not be attempted if there has been loss of skin sensation over the affected joint; and surgical intervention should not be carried out on any lesion syphilitic in itself until the patient is well under the influence of antisyphilitic treatment.

Fractures with delayed union or nonunion associated with syphilis which have failed to be influenced by antisyphilitic treatment may necessitate the use of a bone transplant. Sequestra which have formed in osteomyelitic lesions require removal. When a syphilitic lesion in an extremity has pro-

gressed to a markedly destructive stage with the superimposition of secondary infection and the rapid decline of the patient is imminent, amputation may be the only alternative.

SUMMARY

A survey of 111 clinically active bone and joint lesions resulting from syphilitic infection is presented. The material was drawn from cases admitted to the St. Louis Children's and the Barnes and allied hospitals group. In the group with congenital syphilis it was noted that while osteochondritis and epiphysitis are the most characteristic lesions in childhood, periostitis, osteitis, osteochondritis and osteomyelitis are the most frequent lesions in the order named. Synovitis and dactylitis were of lesser frequency. In the Barnes and allied hospitals group, periostitis, osteitis, osteomyelitis and Charcot joints were most frequent in the order named. The age group from 40 to 50 years had the largest number of adults presenting clinically active bone lesions of acquired syphilis.

The treatment of syphilis of the bones and joints is constitutional and antisyphilitic and rarely surgical intervention. If and when surgery is indicated, it should not be undertaken until the patient is well under the influence of antisyphilitic treatment which includes the administration of courses of arsphenamine and the heavy metals.

This paper has reviewed in a cursory manner the range of osseous lesions incident to syphilitic infection. Its scope precluded any pretense to exhaustive survey or comprehensive detail.

418 Beaumont Medical Building.

APPARENTLY THEY DON'T WANT IT

At the meeting of the house of delegates of the Medical Society of the State of Pennsylvania, October 3-6, *The Journal of the American Medical Association* for January 28 says, it was reported that Dauphin County organized a County Medical and County Dental Society Bureau directed by an experienced welfare worker and including on its staff a medical-social worker and offered the people of the county a free choice medical or dental service care on a budgeted or partial fee basis, or without any charge if properly certified.

Disappointed with the very slight response, the bureau, at its own expense, carried advertisements in three daily newspapers and later for ten consecutive weeks a series of advertisements with accompanying explanatory articles in a labor journal of the county reaching 20,000 employed persons. Again the results were negligible.

It is quite apparent that between existing hospitals, dispensaries, clinics, physicians and dentists in private practice, without mentioning other well organized institutions and agencies, the present day sickness needs, both preventive and corrective, of the people of this populous county are being met as those in need of such services will seek and accept them.

Sound as heard by the ear has two properties; namely, pitch and intensity.—*Hygeia*.

EFFECT OF THERAPY UPON THE INSULIN REQUIREMENT IN DIABETES

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ST. LOUIS

At the present time it must be assumed that diabetes arises out of an insufficient insulin production. All of us require insulin. The amount is largely dependent upon the carbohydrate content of our individual diets. In the person with diabetes something has happened to diminish the insulin productivity of the islets of Langerhans. In consequence one of two accepted procedures may be adopted. Either the carbohydrate content of the diet, which includes the carbohydrate available from protein and fat, may be cut to an amount which can be metabolized by the available insulin supply, or exogenous insulin may be supplied by injection.

In either event diet forms the keystone of treatment. It must be palatable. It must be pleasing to the patient. It must supply all of the forty-two nutrients essential to optimal nutrition. The protein content of the diet is ordinarily fixed at about 1 gram per kilogram of body weight for adults; considerably more for children. This permits, among other foods, one or two servings of meat and one or two eggs. Increasing experience with insulin has led to increasing allowances of carbohydrate. At present, and in keeping with Joslin's teachings, most diets contain between 125 and 150 grams of carbohydrate. This permits the inclusion of from one to three slices of bread and a serving of cereal or potatoes. The balance of the needed calories is supplied by fat. Insulin is prescribed in amounts sufficient to maintain the blood sugar at normal levels throughout the twenty-four hours.

A recent analysis of a small group of unselected persons with diabetes showed that slightly less than half of them required insulin. Of those requiring it somewhat more than half required less than 40 units per day, an amount that may often be given in a single injection. This is more likely to be true since protamine insulin is at hand. The remaining fourth of our diabetic patients may require two, rarely more, injections per day.

The whole picture of diabetes today is encouraging. Present knowledge makes us anticipate increasing tolerance to starches. That patients who carefully follow the prescribed therapeutic regime will require less insulin is to be expected. However, spontaneous variations in the severity of the disease make it difficult to foretell which patients will be able to stop the use of insulin, and which will be required to take more as the disease progresses. Common experience leads to the conclusion that the cooperative diabetic patient who makes every effort to adhere to the restrictions imposed by his therapeutic regime will likely be able to reduce his

dosage of insulin. Furthermore, the earlier diabetes is put under adequate treatment the more likely it is that insulin administration may be eventually discontinued.

OBJECT OF TREATMENT

Treatment has for its object the conversion of the diabetic individual into a metabolically normal individual. The more successful the physician is in making the diabetic patient like a normal person the more successful he will be in forestalling complications. Formerly these complications accounted for his death in coma; today, all too often, they account for his becoming handicapped by some form of arteriosclerotic degeneration. The patient must be taught to realize that until he is metabolically normal adequate control of his disease has not been obtained.

The first major objective in the treatment of the diabetic patient is to make his weight normal or a little below normal. If he is obese this may be done by any of the commonly accepted reducing regimes. If he is much underweight, his feeling of well-being will be considerably enhanced if overnutrition is employed to increase his weight. There is no longer any place for the thin, emaciated diabetic person.

It is not sufficient to be content with a urine free of sugar. The blood sugar may be quite high even though there is no sugar in the urine. In rare instances it is neither wise nor practicable to insist upon a sugar free urine because the patient has a low renal threshold¹ for glucose. But in the great majority of diabetic patients it is possible to keep the urine sugar free and to realize the second major objective in the treatment of the patient; that is, a twenty-four hour blood sugar curve which approximates that of the normal individual. If this cannot be done through dietary restriction alone, then insulin is prescribed in a manner to maintain a normal twenty-four hour blood sugar curve. The usual method of determining this curve is by blood sugar estimations two hours after each meal, at midnight and fasting in the morning.

The third major objective of diabetic therapy is the maintenance of the blood cholesterol within normal limits. At the present time there is no simple method for achieving this. Even if cholesterol were to be rigidly excluded from the diet it is known that the body can synthesize this substance from noncholesterol precursors. Furthermore this fatty alcohol is a vital constituent of nerve tissue. It serves as the basic component of many of the complex hormones elaborated by the body, especially those generated by the sex glands. Hence, it is by no means certain that such exclusion would be wise. While it is assumed that an excess of cholesterol contributes to the development of arteriosclerosis in human beings this supposition is by no means proved.

Patients commonly ask whether they will have to take insulin all their lives, once they have begun it. It is probable that many of them will. It is

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equally certain that some of them will reach a stage of improvement at which they will be enabled to discontinue it. It is the purpose of this paper to report a series of cases (without other detectable endocrine disturbances) in which it was possible to materially decrease the dose or to discontinue altogether the administration of insulin. They illustrate the considerable gains in tolerance which may accrue to the person with diabetes² who follows a therapeutic regime which has for its most persistent object his conversion into a normal individual.

The following case reports are presented briefly. Much of the data has been omitted for the sake of simplification. The weight of all the patients except one was reduced to normal. One patient who later regained much of his lost weight again required insulin. Insulin dosage³ was estimated by blood sugar determinations, most of those recorded having been made two hours after breakfast. The blood sugar level at this time affords the best single indication of the course of the twenty-four hour blood sugar curve. Urine examination almost always showed the absence of sugar.

The tables contain the data pertinent to the primary purpose of the paper, that is, to illustrate the tremendous improvement in carbohydrate tolerance which modern therapy offers the diabetic patient. In no instance has a degenerative arteriosclerotic stigma thus far appeared.

REPORT OF CASES

Table 1.

F. Onset 54 yrs. Blood Sugar: 456 mgs. per cent
Diet: P70 F80 C100. Wt. 150 lbs., ideal 133 lbs.

Date	Urine	Blood Sugar	Insulin
July, 1936	0		40-0-25
Aug., 1936	0	96	30-0-20
Sept., 1936	0	76	15-0-15
Oct., 1936	0	105	15-0-0
1937	0	144, 143, 156, 142	
1938	0	105	

Case 1. (Table 1.) This patient's diabetes began acutely in the summer of 1936 with all of the classical symptoms of the disease including a weight loss of 20 pounds in four weeks. Her husband has been under treatment for diabetes for several years. Although her initial blood sugar was 456 mgs. per cent she was quickly brought under control with diet and insulin. Within four months of the onset of the disease her insulin requirement had dropped from 65 to 15 units daily. For a year and a half, now, she has remained aglycosuric and the blood sugars have all been within normal limits. She is still 17 pounds overweight. If she will take off this additional weight it is quite likely that she will be enabled to maintain normal blood sugar levels entirely without insulin.

Case 2. (Table 2.) This patient⁴ affords an excellent illustration of the value of optimal therapy in the diabetic. For the first three years of his disease and coincident with antilutetic therapy the urine was generally sugar free and the blood sugars within the upper range of normal. Because of persistent glycosuria and increasing blood sugar levels insulin was begun. Shortly thereafter the patient received malarial therapy on

Table 2.

M. Onset 35 yrs. CNS Syphilis. Wt. 135 lbs., ideal 138 lbs.
Diet: P70 F135 C60 to 125.

Date	Urine	Blood Sugar	Insulin
Apr., 1931	Plus	208	-0
June, 1931	0	122	
1932	Variable	129, 132, 170	
1933		166, 232, 166, 146	
Mar., 1934	Plus	183, 183	20 0 20
	Malarial Therapy		to 120u
July, 1934	0		25 15 20
Sept., 1934	0	95	20-0-20
1935	0	149, 37, 59, 107, 170	15-0-0
1936	0	162, 85, 197, 129, 94, 204	5-0-0
1937	0	65, 125, 393, 114	P15 0 0
1938		109	P15-0-0

account of paresis; 120 units of insulin were required to keep the blood sugar below 200 mgs. per cent on the days of the ten chills. Within three months of the completion of this course of treatment insulin was reduced from 60 to 40 units daily. Tolerance steadily increased and for a year he took only 15 units of insulin daily although the carbohydrate content of his diet had been doubled. For the next year he required only five units daily. For over a year, now, he has been well controlled on a single dose of 15 units of protamine insulin before breakfast.

The blood sugar of 393 mgs. per cent in 1937 was obtained when he had been without insulin for several days.

Table 3.

M. Onset: 46 yrs. Both parents diabetic.
Diet: P80 F140 C80 Wt. 170 to 147 to 170 lbs., ideal 156 lbs.

Date	Urine	Blood Sugar	Insulin
Apr., 1933	0	121	25-0-20
July, 1933	0	93	20-0-15
Oct., 1933	0	128	
Mar., 1934	0	147	15-0-10
May, 1934	0	110	10-0-10
Aug., 1934	0	121	-0-
1934	0	94, 110, 116	
1935	0	111, 104, 139, 118	-0-
	Auto accident injuries		
Nov., 1936	Plus		20-0-15
Mar., 1937	0	135	10-0-0
June, 1937	0		-0-
	Held up by gunman		
Aug., 1937	0	122	P10-0-0

Case 3. (Table 3.) At the time this patient first presented himself with a classical history of diabetes he had a fistula in ano requiring surgical treatment. In the early years of his disease he was quite cooperative in following the diabetic regime, losing in weight to slightly below the normal. The improvement in tolerance is manifested by sugar free urines with normal blood sugar levels on rapidly decreasing doses of insulin. For nearly two years he maintained a normal blood sugar level without insulin. Toward the end of that period he became careless of his diet, gained weight, and was not seen for several months.

He suffered severe sprains and contusions in an automobile accident and again required insulin. How much of the diminished tolerance was due to the gain in weight and how much to the shock accompanying the accident, it is difficult to state. Shortly thereafter he was again enabled to do without insulin, but three months later he was held up by a bandit. Perhaps as a result of this shock his tolerance again decreased and he required a small dose of protamine insulin. He recently reported that he had had a sugar free urine for several months without insulin but there have been no blood sugar estimations.

Table 4.

M. Onset: 46 yrs. 4 familial cases. Diet: P 75 F80 to 110 C100 to 140. Wt. 147 lbs., ideal 152 lbs.			
Date	Urine	Blood Sugar	Insulin
Apr., 1936	0	139	25 0-15
May, 1936	0	94	20 0-15
Aug., 1936	0	93	0 20 0
Nov., 1936	0	116	0-
1937	Generally aglycosuric but frequent bouts of overeating and overdrinking leading to glycosuria		

Case 4. (Table 4.) This patient was seen six weeks after the first symptoms appeared and immediately after sugar was discovered in his urine. Within four months of beginning treatment insulin was discontinued. He did well for eight months. Thereafter he was seen only occasionally. He indulged in frequent bouts of overeating and overdrinking. His own urinalyses showed frequent glycosuria. Occasional blood sugar determination in 1937 are not shown in the table because they were obtained only after the patient had been following his diet for several days.

Table 5.

F. Onset: 51 yrs. Abscess of back. Required 100u insulin daily in hospital. Diet: P60 F80 C100. Wt. 146 lbs., ideal 148 lbs.			
Date	Urine	Blood Sugar	Insulin
Sept., 1936	0	148	20 0 0
Oct., 1936	0	81	10 0 0
Nov., 1936	0	111	5 0 0
1937	0	119, 87, 101, 109	0-
1938	0	131	

Case 5. (Table 5.) Diabetes was discovered in this patient when she entered the hospital with an enormous abscess of the back. When the blood sugar was brought down to normal by the administration of as much as 100 units of insulin daily the abscess quickly drained itself under the influence of hot wet saline packs. Excision of the diseased area which had been planned as soon as the diabetes was sufficiently controlled was not necessary. Upon discharge from the hospital the insulin requirement had dropped to 20 units daily. Within four months insulin was entirely discontinued. For nearly a year and a half the patient has been aglycosuric and blood sugars have been consistently normal.

Table 6.

M. Onset 46 yrs. Infected gangrene of foot requiring 150u insulin daily in hospital. Diet: P80 to 150 F150 to 100 C80 to 130. Wt. 165 lbs., ideal 177 lbs.			
Date	Urine	Blood Sugar	Insulin
Mar., 1934	0		30 25-30
Apr., 1934	0	138	30 10 25
June, 1934	0	56	25 0-20
Oct., 1934	0	74	20 0 0
1935	0	82, 74, 77	20 0 0
1936	0	86, 96, 99, 100	0-
1937	0	114, 164, 98, 113	
1938	0	124	0-

Case 6. (Table 6.) This patient presented an extensive infected gangrene of the foot when first seen at the age of 46. He had had some corns treated by a chiropodist and professed ignorance of the previous existence of diabetes. During hospitalization and prior to amputation the insulin requirement was as high as 150 units daily. Within eight months he was able to reduce his insulin from three to one dose per day, the requirement dropping from 85 to 20 units. A little less than two years after the onset of his diabetes insulin was entirely discontinued. For over two years he has been aglycosuric and the blood sugars taken at frequent intervals have been consistently normal.

DISCUSSION

In each of these patients the criteria outlined above as being consistent with the optimal treatment for the diabetes were met. In the first place a diet containing all of the essential nutrients was prescribed. In the second place weight was reduced to normal. In the third place a zealous attempt was made to maintain normal blood sugar levels at all times.

The whole picture shown by these patients illustrates the optimism with which physician and patient may approach the problem of diabetes. Insulin need not be administered for life if adequate control is begun sufficiently early. The part that adequate control plays in determining future insulin dosage is well illustrated by cases 2 and 5.

In case 2 the diabetes was becoming increasingly severe, perhaps on account of a syphilitic infection of the pancreas. The patient was given malarial therapy for the relief of his paresis. During the course of ten chills only once was the blood sugar noted to be above 200 mgs. per cent. The insulin requirement immediately after discharge from the hospital following this exhausting therapy was considerably increased. Within six months of discharge it was possible to lower it to an amount less than he had received previously. During an entire year he took only 5 units daily. He would have done equally well without any insulin but the necessity of a daily injection served to remind him that he still had diabetes and that he must continue to follow his diet.

In case 5 a large abscess of the back healed without surgery as soon as the blood sugar was brought down to normal. Hot wet saline packs produced sufficient softening in the presence of a normal blood sugar so that the lesion drained freely and the core was easily expressed.

Considerable reductions in insulin dosage have been brought about in several patients not included in this report. (Cases complicated by thyrotoxicosis are not included.) Some continue to take a single small dose of insulin each day in order to keep impressed upon their minds the necessity of following a diet. There is always a temptation for the diabetic patient to step over the limits of his tolerance. While he may do so a few times without harm, such repeated abuse leads invariably to decreasing tolerance for starches and the need for increasing or resuming insulin. If the patient reported as case 4 continues to overeat he will have to resume insulin. In some patients a routine which includes a daily hypodermic injection goes far toward curbing such temptations.

A striking illustration of this truth is concerned with a girl 14 years of age when first seen and who has now been under treatment for ten years. After several months of treatment it was possible for her to discontinue insulin entirely. Blood sugar levels remained normal for nearly a year although a glucose tolerance test was typical of diabetes. One

evening she went to an ice cream parlor with friends. Not wanting them to know that she had diabetes the young lady indulged freely in all the products of the confectionary. The result was an immediate and severe glycosuria with acidosis. It was necessary to resume the administration of insulin. Later the drug was stopped again. For fifteen months this time the patient did well. Then, another dietary excess required the resumption of insulin. In the intervening years she has gone through a pregnancy, an abdominal operation and several severe respiratory infections with high temperature. In addition to these physical shocks she has suffered the emotional shocks associated with a divorce and several minor infatuations. Her insulin requirement, while ambulatory, has varied between 20 and 80 units daily, given in from one to three doses. Dietary indiscretions continue frequent. Although one dose of insulin each day has been adequate for short periods of time it is doubtful if this young woman will ever again be able to do entirely without it. It seems reasonable to believe that had she continued to adhere to the diabetic regime she would today be controlled entirely without insulin. Instead she now takes 50 units of the protamine preparation each day.

Rigid adherence to simple, fundamental concepts has brought about the good results everywhere experienced by physicians and shared by diabetic patients. There is much reason to believe that continued adherence to these concepts will result in freeing the diabetic patient from the arteriosclerotic complications sometimes considered inherent to the disease. It is difficult to investigate this question statistically in a small series of cases. Nevertheless it is a matter of general experience that the only diabetic patients requiring amputation of the foot are those who have been unfaithful in following the diabetic regime or those in whom the diabetes was discovered at the time when the necessity for amputation first presented itself. Not a single one of my patients who has been continuously under treatment has required an amputation of the foot. It is believed that the constant effort to convert these diabetic patients into individuals possessing a metabolism as near normal as possible has been largely responsible.

SUMMARY

1. The primary tenets governing the management of diabetes are (a) a diet which contains an abundance of the essential nutrients and not more than 150 grams of carbohydrate; (b) the attainment of a normal weight; (c) enough insulin to maintain the twenty-four hour blood sugar level within normal limits.

2. Over half the diabetics seen in my clinic maintain a normal twenty-four hour blood sugar curve without the administration of insulin. In nearly half the patients requiring insulin one dose a day is sufficient. Only rarely does a patient require more than two injections of insulin per day.

3. Insulin is not necessarily required for life. Many patients require it only during an acute complication. Others, through careful adherence to the prescribed regime, are able to bring about such striking increase in tolerance for starches that one administration per day is sufficient.

4. Finally, the histories of four patients have been presented in whom the daily insulin requirement has dropped under ambulatory treatment from a maximum of 85 units per day to none.

Metropolitan Building.

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SOME RECENT ADVANCES IN OPHTHALMOLOGY

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SPRINGFIELD, MO.

KERATOPLASTY

Our patient reads in the morning paper of an extraordinary operation by which a blind man has been given sight; his opaque cornea has been replaced by a clear cornea transplanted from another's eye. When our patient asks, "Is this feasible?" it behooves us to be familiar with the present status of this operation.

Keratoplasty is now conceded to be a practical procedure and the outlook for patients blinded by corneal opacities is far more encouraging than it has been in the past. From series of cases reported by such men as Elschvig,¹ Castroviejo,² Thomas³ and Filatov⁴ it appears that in suitable cases there is a 70 per cent chance of improving vision and a 25 per cent chance of obtaining a clear cornea with useful vision.

The technic employed, with various modifications, is briefly as follows: An opening is made in the cornea of the recipient to correspond exactly in size and shape to the graft that is obtained from the cornea of the donor's eye; the edges of the graft are beveled, the anterior surface being larger than the posterior to prevent it from falling into the anterior chamber; after being placed in its new position, the implant is held there snugly by conjunctival flaps sutured over it.

The difficulty in the operation is in keeping the graft transparent. Even though it comes from clear corneal tissue the graft shows a tendency to become opaque after transplantation. There are many causes for this. One cause has been thought to be the entrance of aqueous humor into the corneal tissue; one writer⁵ in mentioning this phenomenon

Read at the 81st Annual Session of the Missouri State Medical Association, Jefferson City, May 2-4, 1938.

says that in his experience aqueous humor is an enemy of corneal tissue just as it is of the lens. To avoid this complication the transplant should fit so tightly in its new bed that the aqueous humor cannot seep through.

A transparent graft is more likely to be obtained if the recipient's eye is healthy except for the leukoma and if the cornea contains some clear areas; a completely opaque cornea with much scar tissue cannot furnish sufficient nutrition for the implant and as a consequence it becomes opaque.

The graft should preferably come from the enucleated eye of a young person; that from an old individual does not transplant well. It must be taken from a cornea that is transparent and healthy; the cornea of a glaucomatous eye is edematous and never clears up.

Filatov and other Russian ophthalmologists use grafts taken from the corneas of persons who have died. They remove healthy eyes a few hours after death and preserve them at a temperature just above freezing sometimes for as long as fifty-five hours. They report that such transplants show no more tendency to become opaque than those removed from the living. Filatov also uses the cadaver's conjunctiva for the conjunctival flap instead of the conjunctiva of the recipient as has been previously practiced.

A keratoplasty which results in an opaque transplant does not interfere with a second keratoplasty.

SOMETHING NEW IN GLAUCOMA: GONIOSCOPY AND GONIOTOMY

If the limbus were transparent and the angle of the anterior chamber visible, glaucoma would not be the baffling disease it has always been. Many ophthalmologists have been intrigued with the possibility of looking directly into this hidden corner of the eye and some have worked out ingenious devices to make this possible. Thus gonioscopy, as this examination is called, has come into being and is now practical enough to be used routinely in some clinics; in consequence, important new observations on glaucoma have been published.

Perhaps the man who is at present doing the most work in this field is Otto Barkan. He makes the examination with binocular corneal microscope and slit lamp, using a contact lens on the patient's cornea; the contact lens deflects the rays in such a way that the most peripheral parts of the anterior chamber are visible.

Barkan's study of the angle in chronic glaucoma^{6, 7, 8} has caused him to classify these cases into two types: First, and this type includes more than half, are those in which the depth of the anterior chamber is normal and the angle open; and second, those in which there is a shallow anterior chamber with narrow angle.

In type 1, Barkan's theory of the cause of increased intra-ocular pressure is this: Whereas in normal eyes the aqueous humor passes readily from the anterior chamber through the pores of

the sclerocorneal trabeculum into Schlemm's canal, in these cases there is a mechanical block in the trabeculum. In most, the pores of the trabeculum become clogged with pigment granules which can be seen forming a pigment band running along the course of Schlemm's canal; often, Barkan says, the pigment granules fill the pores and project into the aqueous humor like barnacles on the hull of a ship. In a smaller number of cases of type 1, where no pigment is seen, a sclerosis of the fibers of the trabeculum exists as evidenced by the normal lack of transparency to the beam of the slit lamp. But whether due to stoppage by pigment granules or sclerosis of the fibers, there is always a block in the pores of the trabeculum in cases of glaucoma with an open angle. And this mechanical block is always the sole cause of the glaucoma, according to Barkan.

Assuming that the cause is established, Barkan has worked out an operation^{8, 9} for this type of glaucoma. It consists in opening Schlemm's canal by incising the trabeculum for at least one fourth of its circumference. He does this under direct vision using a corneal microscope attached to a helmet he wears and with a contact lens on the patient's cornea. The knife is introduced at the temporal limbus and carried across the anterior chamber to the nasal side where Schlemm's canal is opened. The operation is described as an easy and safe procedure.

Barkan reports that in his series in every case in which the trabeculum has been incised over a sufficient extent, the tension has been brought to normal and remained there to date. The longest period of observation, however, has been only two years.

These good results obtained from incising the trabeculum and opening Schlemm's canal offer strong proof that Barkan is correct in his assumption that this type of glaucoma is due to a mechanical obstruction of the pores of the trabeculum. If time proves this to be true, a great advance will



Fig. 1. Chronic noncongestive glaucoma, type 1. Schematic drawing showing open angle of the anterior chamber and blockage of the sclerocorneal trabeculum. (From Otto Barkan, *Am. J. Ophth.* 19:953 (November) 1936.)

have been made in the surgical treatment of chronic simple glaucoma.

Barkan emphasizes that goniotomy is not to be performed upon those cases of glaucoma in which there is a shallow chamber and narrow angle, even though they run a noncongestive course.

A NEW ANTISEPTIC

A new type of antiseptic has been shown by experiments to stand high enough among ocular germicides to command our attention. Borrowing a name used by some of its investigators, the preparation is referred to in this paper as alba (trade name, zephiran). Alba is a mixture of high molecular alkyl-dimethyl-benzyl-ammonium chlorides in which the alkyl radicals are derived from the fatty acids of coconut oil.

In a laboratory study Thompson, Isaacs and Khorazo¹⁰ compared the disinfectant properties of ten antiseptics with reference to use in the eye. In their experiments they used the highest concentration of each antiseptic that had been found non-irritating to the conjunctiva. The disinfectant tests were made on suspensions of staphylococcus aureus in a serum buffer mixture made to approximate tears as nearly as possible. Figure 2, a table comparing the disinfectant rate of the different antiseptics as found in the experiments, shows alba to be far more rapid in action than the others.

Further investigations showed that alba works moderately well after dilution as with excess tearing, but that its antiseptic action is slowly hindered by such organic matter as mucus, pus and tissue debris with which it combines, rendering it inactive. Its most objectionable feature is that it exerts a toxic effect upon the leukocytes and lysozym, the latter an enzyme found in the tears.

From this work one would expect alba to be a good ocular antiseptic for use preliminary to operation or following an eye injury. In a case of infection where repeated applications are necessary, only clinical trial will show whether the rapid and

powerful antiseptic qualities of this new drug are sufficient to outweigh its toxicity for the natural defenses of the eye, the leukocytes and lysozym.

BUFFER SOLUTIONS

During the last few years we have been made increasingly conscious of the importance of the pH, or reaction, of solutions employed in ophthalmology. Lipschütz¹¹ was the first to call attention to the fact that the irritation felt in eyes after instillation of commonly used collyria is caused by the reaction of the solution used. He found that neutral solutions of sodium chloride produced almost no sensation in the eye; those slightly acid or slightly alkaline caused a slight feeling of irritation and some congestion, while still more acid or alkaline solutions gave rise to severe burning sensations and intense congestion. He therefore proposed the use of buffer solutions as media for drugs to be used in the eye. Buffers are solutions of known pH which reaction remains unchanged even with the addition of a weak acid or alkali.

As a further reason for dispensing ophthalmic drugs in buffer solutions, it has been shown that the absorption of alkaloids by the cornea is greatly influenced by the reaction of the solution¹²; for instance a 1 per cent solution of atropine sulphate in distilled water with pH of 5.8¹³ and therefore slightly acid, is not absorbed as readily as a solution of the same alkaloid in an alkaline buffer of pH 7.5.

Different therapeutic uses of buffer solutions have been suggested. Hosford and Hicks,¹⁴ in treating a case, test the pH of the tears and use a buffer that will tend to bring the pH of the tears up to 7.3 which they consider the normal reaction. Their

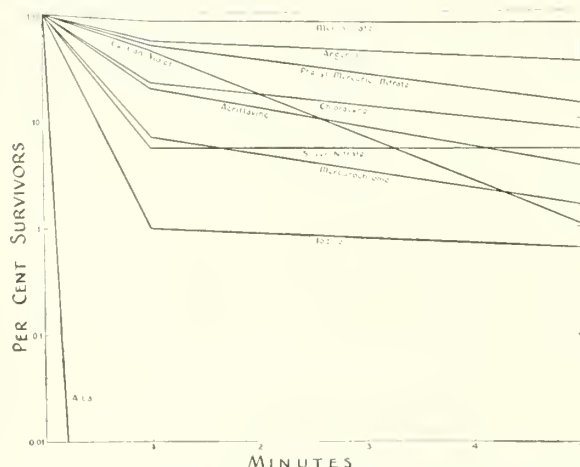


Fig. 2. Disinfection rates of nonirritating concentrations. (From Thompson, Isaacs and Khorazo, *Am. J. Ophth.* 20:1091 (November) 1937.)

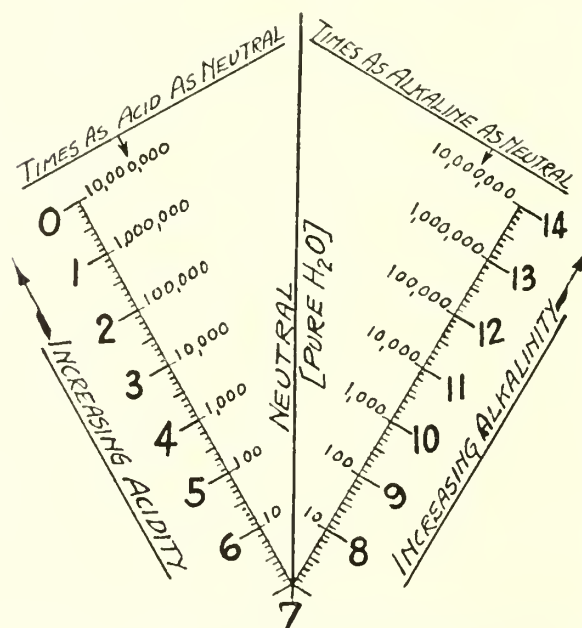


Fig. 3. Diagram showing increase of acidity and alkalinity by logarithmic progression. (From Feldman, *Arch. Ophth.* 17:799 (May) 1937.)

experience causes them to believe that injuries to the cornea produce a shift of the pH of the tears to the alkaline side and that the same occurs in acute ulcers of the cornea. Both of these conditions they treat with an acid buffer solution, thereby counteracting the excessive alkalinity. They agree with other observers that in vernal catarrh the tears show an even greater shift to the alkaline side, reaching a pH of from 8 to 8.4, and that relief of symptoms is obtained by the use of acid buffers. According to their observations in conjunctivitis, both acute and chronic, some cases show excessive acidity of the tears, others excessive alkalinity.

Feldman,¹⁵ after treating several hundred cases of extra-ocular disease with a buffer solution possessing a pH of from 7 to 7.3, reports that the startling improvements which he has obtained have amply repaid him for the trouble and painstaking care required in making the solutions.

Feldman also likes to use a buffer of pH from 7 to 8 with contact lenses. He finds that with such a solution patients can wear contact lenses longer than with physiologic solution of sodium chloride or Ringer's solution. He mentions one case in which a patient who could wear a contact lens only two hours with Ringer's solution, could retain it comfortably for ten hours when a buffer solution was used.

TRYPARSAMIDE IN OPTIC NERVE ATROPHY

Tryparsamide has been accepted enthusiastically as an effective drug in the treatment of neurosyphilis. Since its introduction in 1923, however, much has been written concerning its toxicity for the optic nerve, and atrophy of this nerve has been considered a distinct contraindication to its use.

Recently this position has been assailed. At the meeting of the 1937 session of the American Medical Association Mayer¹⁶ read a paper in which he reviewed the ocular history of 155 patients with neurosyphilis who had received tryparsamide; of this group, some were known to have optic atrophy when the treatment was started. His conclusions were that of patients treated with this drug, the percentage of those benefiting so far as the optic nerve is concerned is far greater than those in whom damage may occur; and that patients with optic atrophy due to syphilis should have the advantage of the use of tryparsamide when the drug is indicated.

In the discussion, Lillie said the report supported his contention that tryparsamide is not more dangerous from the visual standpoint than other preparations used in the treatment of syphilis of the central nervous system. He referred to the fact that changes occurring in the visual field in cases treated with tryparsamide are similar to those occurring in untreated cases of syphilis and that no pathognomonic defect in the visual field due to tryparsamide has been demonstrated. He believes the atrophy which is credited to the tryparsamide is more probably due to the syphilis. He mentioned

that in untreated or inadequately treated syphilis of the central nervous system, atrophy of the optic nerve occurs in 35 per cent of the cases. In cases treated with tryparsamide from 2 to 10 per cent develop atrophy which would support the view that tryparsamide is preventing atrophy in 25 per cent of the cases in which it is used.

Kravitz¹⁷ in a recent publication reports that from observations made at the Brooklyn Hospital on cases treated with tryparsamide over a period of four years, it has been concluded that this drug is not contraindicated in cases of optic atrophy.

On the other hand, Fine and Hans Barkan¹⁸ last year reviewed the literature on the subject and from evidence thus obtained came to the conclusion that the incidence of reaction in patients with pre-existing optic nerve atrophy is definitely higher, and that such preexisting lesions constitute a distinct contraindication to the use of the drug.

They believe that the visual disturbances occurring during treatment with tryparsamide are due to a specific toxic action of the drug upon the nerve and not to the syphilis. Otherwise they cannot explain the striking subjective symptoms which occur in tryparsamide amblyopia and not in optic atrophy of syphilis, described variously as dazzling, bright objects in motion, heat waves or blurring; nor can they account for the rapidly contracting visual fields which return to normal promptly if the drug is stopped early.

However, whereas it is now controversial whether or not a patient with neurosyphilis who has optic atrophy should receive tryparsamide, it is agreed by all that, if the treatment is given, rigid ocular control is imperative. A preliminary record must be made of visual acuity, visual fields and fundus findings; also before each dose the patient must be questioned concerning subjective visual symptoms and the objective findings checked with emphasis upon the visual fields. Where an increasing contraction of the fields or other positive findings are observed almost all agree that tryparsamide is to be discontinued at once.

BENZEDRINE IN CYCLOPLEGIA

Promising to be a great aid in refraction is benzedrine with the cycloplegic drugs. The advantages of this new method of inducing cycloplegia are its rapid action and the swift recovery.

Beach and McAdams¹⁹ have found that a single instillation each of 1 per cent benzedrine and 1 per cent atropine will produce in an hour a cycloplegia as complete for practical purposes as can be obtained from repeated instillations of atropine over a period of three days. The effect passes off quickly, as a rule in from one to four days. Cycloplegia obtained from benzedrine and homatropin is complete in from fifty to seventy minutes and disappears rapidly so that many patients refracted in the afternoon can read that evening; they are able to return to work or school the next morning.

The rapid induction of cycloplegia is thought to

be due to the action of benzedrine in stimulating the radial fibers of the ciliary muscles while the atropine inhibits the circular fibers. The rapidity with which the effect passes off is probably due to the small amount of atropine or homatropin that has been used.

For comparison, Beach and McAdams used the two methods at different times upon the same eyes. They found that the cumulative use of atropine abolishes about .25 D more accommodation than the benzedrine method; that with homatropin there was even less difference. Therefore, where accuracy of less than .25 D is allowable, the two methods are equally efficient.

The authors conducted their experiments with one instillation each of benzedrine and a cycloplegic. Because, however, the first drop of cycloplegic is often squeezed out, they advise that in practice it is safer to use a second drop. They recommend the following technic: first an instillation of 1 per cent atropine or 5 per cent homatropin, followed in two or three minutes by a drop of 1 per cent benzedrine; then after allowing about two minutes for the benzedrine to take effect, a second instillation of the cycloplegic. They prefer that, for effective instillation, the cornea be in a horizontal position.

In their series of cases they have never seen the slightest toxic effect from the benzedrine.

205 St. Louis Street.

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DISCUSSION

DR. JOHN McLEOD, Kansas City: Barkan's operation on glaucoma represents a distinct advance in the treatment

of this condition for which in the past there have been so many different types of therapy advocated, none of them completely successful although all have done some good. However, this operation, valuable as it is, is applicable to a rather limited type and condition. If there has been a series of chronic inflammatory exacerbations with formation of synechiae between the iris and the cornea at the periphery, thereby occluding Schlemm's canal with a more or less solid tissue, the results are not so good. It is almost impossible to get past that adherent iris and open up the canal properly. For this reason the operation is not a panacea and must be controlled by careful examination of the anterior chamber.

In regard to the use of tryparsamide, we have at the General Hospital a number of syphilitic patients many of whom are in various stages of tabes, and we have checked carefully from time to time the visual fields, the visual acuity of these patients. We have seen no changes in the visual fields that could be reasonably attributed to the tryparsamide. We feel that many patients have been saved from blindness by the use of tryparsamide. We feel this so strongly that we are no longer afraid of the drug. I think everyone on the eye staff at the clinic feels that it is better to take a chance with tryparsamide rather than with the Spirochete. In some cases there seems to be a toxic action, but with care I believe there is no anaphylactic reaction but rather a peculiar sensitivity of the optic nerve to the drug.

DR. HARVEY J. HOWARD, St. Louis: I want to thank Dr. Smith for her excellent presentation. It shows that she does wide reading and applies that reading in her practice.

I was much interested in what she said about the use of buffer solutions. I have used these solutions over a period of a year, particularly in cases of allergic conjunctivitis. I much prefer buffer solutions to using distilled water or normal salt solution as a solvent for certain active drugs. I also want to corroborate from my own experience what she said about the use of buffer solutions in the fitting and the wearing of contact lenses. I find these solutions superior both to normal salt solution and Ringer's solution which are generally used.

Dr. Smith mentioned zephiran. I have used this in 1 to 3000 dilution effectively during the last six months in cases of both chronic and acute conjunctivitis. These included cases of chronic trachoma.

During the last few years we have materially changed our point of view regarding that word "conjunctivitis." What we used to think of as bacterial invasions of the conjunctiva are perhaps in 80 to 90 per cent of cases merely allergic irritations of the ocular mucous membrane. For such cases the less we prescribe in the way of irritating drugs the better the patient gets along. In fact, they obtain the most relief from a normal sodium chloride solution or a buffer solution.

There is one thing which Dr. Smith did not mention that has recently been found to be of such great benefit that ophthalmologists ought to be familiar with it; namely, the intramuscular injections of ergotamine tartrate in cases of migraine. Since many of these cases have scintillating scotoma they often first consult the ophthalmologist for help. Even many cases of migraine who do not suffer from the dazzling and temporarily blinding symptoms prior to the onset of the severe headache consult an ophthalmologist. These cases undoubtedly belong to the field of endocrinology, in which the ophthalmologist should be somewhat informed. But the fact is that these cases do not have to suffer long years of torture for it has been estimated that 90 per cent of them can either be cured or greatly relieved by a few injections of ergotamine tartrate. In fact, I have seen one dose give full relief for a month in a middle-aged woman who had suffered daily with severe headache associated with scintillating scotoma.

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FEBRUARY, 1939

EDITORIALS

SYPHILIS: TOPIC OF THE MONTH

The Postgraduate Correlating Committee selected "Syphilis" as the topic of the month for the February issue of *THE JOURNAL* and discussions of various phases of diagnosis and treatment of syphilis appear in this issue. The number of component societies using the topic of the month for discussion at meetings and the number of requests for speakers on these subjects are gradually increasing.

"Maternal and Infant Care" will be the topic of the month for March, "Cancer" for April and "Mental Health" for May.

VITAMIN D FRACTIONS

Extensive biochemical investigation has proved that vitamin B is a complex composed of several different fractions each of which possesses characteristic inherent qualities and each of them can be shown to produce a different effect in animals and especially in different species of animals. Until recently it has been assumed that each of the other vitamins represented a distinct biochemic entity.

Now it is postulated that vitamin D is composed of as many as nine distinct vitamins. The evidence for this view is twofold. In the first place fish liver oils exert strikingly different antirachitic effects in animal experiments. Bills, Massengale, Imboden and Hall¹ fed chickens with fish liver oils having similar antirachitic potencies as measured in rats. However, the response of the chickens measured in terms of the femur ash residue showed extreme variations. The liver oil of the cod possessed an efficacy of 100 per cent, but the liver oil of the blue fin tuna possessed an efficacy of only 16 per cent. At the other extreme the liver oil of white sea bass possessed an efficacy more than 300 per cent greater than that of cod liver oil. Irradi-

ated ergosterol, as assayed in chickens, possessed only 2 per cent of the efficacy of pure cod liver oil.

As contrasted with the utter uselessness of irradiated ergosterol in these experiments irradiated cholesterol obtained from the spinal cord presented the same degree of effectiveness as cod liver oil. Bills and his collaborators explain their results by the following supposition: "Our findings are explicable on the basis that two (or more than two) kinds of vitamin D exist in fish oils, the proportions varying in the different oils. It now seems unlikely that any particular fish oil, such as cod liver oil, contains one kind exclusively." In reaching these conclusions, which incidentally led them to postulate the existence of at least nine different forms of vitamin D, these investigators have been careful to exclude such sources of possible error as the existence of conjugated vitamin D, and the synergistic or antagonistic effects of various substances found in fish oils.

An interesting by-product of the work of Bills and his coworkers lies in the ichthyologic differentiation of hitherto unknown forms of tuna, the existence of these forms being originally suspected on the basis of biologic variations in the quality of the oils obtained from the liver.

Bills and Massengale,² this time in collaboration with Hickman and Gray, extended their investigations by feeding chickens distillates of cod liver oil. They found that a low boiling vitamin D distillate possessed markedly lower antirachitic power for chickens than for rats. This low boiling distillate was from one half to one fourth as effective, rat unit for rat unit, in chickens as the total vitamin D content of the original oil.

Hickman and Gray³ discovered that distillation of cod liver oil produced several different fractions, all of them possessing some of the properties of vitamin D. As might be expected on the basis of these observations the effect of these various distillates on the healing of rickets in experimental animals was quite variable. On theoretical grounds they postulate that all these marine forms of vitamin D possess a similar choline nucleus and that the variations are confined to the side chain attached to the seventeenth carbon atom. They believe that nature prefers a chain of from eight to ten carbon atoms in this position and that isomeric or homologous forms occur with fewer or more carbon atoms depending upon the law of simple probability.

At the present time the clinical application of these investigations is by no means clear. The elucidation of the problems suggested by these researches will be awaited with much interest. It is possible that the clinician may anticipate the day when he will prescribe a vitamin D fraction for the prevention or amelioration of a specific deficiency complex just as he now prescribes specific vitamin

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B complexes for the cure of particular clinical entities. It is not too much to hope that these researches may lead to a better understanding of the rationale of vitamin D therapy in general.

DANGEROUS POTENTIALITIES OF INSULIN

The exhibition of potent medicinal products is fraught with danger in proportion to the therapeutic effectiveness of the preparation. In some instances toxic manifestations are readily apparent. For example, the administration of excessive doses of digitalis is attended with nausea and disturbances in the rhythm of the pulse. No permanent anatomic or physiologic change is inaugurated provided that prompt alteration of the dose is instituted.

The administration of insulin, likewise, sometimes results in the appearance of toxic manifestations, especially weakness, hunger and sweating. The therapeutic indications under such circumstances are generally recognized. The discovery of the protamine derivative, however, posed a new problem in management. The bizarre manifestations of overdosage with the protamine preparation are likely to defy clinical detection; indeed, the patient may continue in a state of severe hypoglycemia without any suspicion of its existence in the mind of the physician.

The more recent discovery of the beneficial effect following upon severe insulin reactions induced in schizophrenic persons offers new problems in relation to the toxicity of insulin. Death during the stage of severe hypoglycemia while uncommon does occur. Now there is reason to believe that permanent anatomic and functional alterations in the integrity of the nervous system may be induced by the treatment. In effect, recent findings call attention anew to the importance of adequate laboratory observation of those persons to whom insulin is being given for any therapeutic purpose.

Blau, Reider and Bender¹ offer a unique report of a patient with severe recurring hypoglycemic attacks of undiscoverable etiology complicated by a progressive internal hydrocephalus. The general clinical impression created by this patient was that of a severe Parkinson syndrome. Repeated encephalograms revealed a progressive internal hydrocephalus which may have been the result of the extreme depression of the blood sugar. One of their observations deserving of repetition and emphasis is that convulsions and other evidence of neurological disturbance did not always occur even when there were scarcely detectable amounts of sugar in the blood.

Lindsay et al² studied a diabetic patient who was inadequately treated with protamine insulin. She

suffered numerous hypoglycemic attacks and finally died in one after eight days of coma. In this instance the prolonged unconsciousness was due to cerebral injury, diagnosed during life as the result of a cerebral infarct. Autopsy revealed the brain as the site of numerous hemorrhages and at least two cysts, the larger of them nearly a half inch in diameter. These authors believe that the advanced arteriosclerotic degeneration of the cerebral arteries of their patient was largely responsible for the pathologic findings. In addition, however, the nutritive processes of the brain suffered severely because of the low blood sugar during the hypoglycemic phases.

Baker³ recently discussed the pathologic anatomy in the case of two additional persons subjected to prolonged hypoglycemia, the one because of overdosage with insulin, the other on account of persistent hyperinsulinism. After careful microscopic study they concluded that hypoglycemia induces cerebral petechiae of various sizes, large areas of encephalomalacia, demyelination and cyst formation, and diffuse glial proliferation and gliosis around the areas of softening. Their patients, during life, manifested a variety of neurologic abnormalities, both subjective and objective. At times the physical examination was suggestive of a hemorrhage into the internal capsule.

The purpose of these remarks is not to warn against the proper exhibition of insulin but rather to call attention to the care which must attend its use. Insulin remains one of our most valuable therapeutic agents. It should be employed regularly in those clinical conditions in which it is indicated. But superficial observation of the patient will not suffice to determine the number of units to be administered to the individual patient. The clinician must be cognizant of the bizarre symptoms of overdosage and must be prepared to guard against them. Since inspection of the patient alone does not suffice to guide the physician in application of insulin, recourse must be had to determinations of the level of the blood sugar.

Since schizophrenia ordinarily has an unfavorable prognosis the danger of induced anatomic cerebral disturbance does not seem great enough to preclude its use. Yet, if remedies now being tried for the cure of this condition prove as successful as insulin they might be preferable. In the person with diabetes insulin continues to be the drug of choice. Yet it must not be prescribed lightly. If the greatest benefit is to be derived from it estimation of the glycemic level at more or less regular intervals is imperative. This simple laboratory procedure, along with the available clinical information, may be depended upon to give warning of the approach of the complications discussed. It must be called into use as the agent of more adequate diabetic therapy.

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NEWS NOTES

Dr. Meyer Wiener, St. Louis, was the guest of honor at the annual meeting of the St. Louis Society for the Blind held in St. Louis on December 5.

Bronze plaques to the memory of Dr. Ellis Fischel, Dr. Harvey G. Mudd and Dr. William H. Mook were unveiled at the annual meeting of the Barnard Free Skin and Cancer Hospital, St. Louis, January 23.

The Missouri-Kansas Neuro-Psychiatric Association will hold its annual winter meeting in Kansas City on February 15. The meeting will open at 10 a. m. at the Neurological Hospital, 27th and the Paseo. Those in attendance will be guests of the Robinson Clinic for luncheon. A dinner will be held in a downtown hotel or club followed by an address by a distinguished member of the profession on a subject of general interest. The program during the day will be practical and is planned to interest physicians in every field. The association invites members of the Missouri State Medical Association to attend the meeting.

Dr. Carl F. Vohs, St. Louis, and Mr. F. K. Helsby, Kansas City, Executive Secretary of the Jackson County Medical Society, were guests of the Indiana State Medical Association at its annual conference of county medical society secretaries held at Indianapolis on January 22. Dr. Vohs spoke at a dinner meeting on "A Medical Plan for all the People." Mr. Helsby spoke in the afternoon session on "Hospital Insurance." Other subjects discussed at the conference were "The National Medical Situation," "Mental Hygiene Clinics," "Farm Security Administration," "Legal Problems," "Legislative Problems," and "Plans to Establish District Health Units."

The Northwest Regional Conference will meet in Chicago on February 12. Dr. Carl F. Vohs, St. Louis, is president of the Conference and Dr. L. Fernald Foster, Bay City, Michigan, is secretary. Dr. Major G. Seelig, St. Louis, will discuss "A State-Wide Hospitalization Plan for the Low Income Group" and Dr. Theodore R. Meyer, Clayton, will speak on "The Physician's Role in a Public Health Program." Other subjects to be discussed include "Pennsylvania's Public Assistance Program for the Medically Indigent," "Middletown Modernizes Medicine," "The National Health Program," "Survey on the Need and Supply of Medical and Hospital Care," "Supplementary Arrangements for Medical Care," and "Recent Legislation in Kansas Affecting the Practice of Medicine."



"Beaumont and St. Martin" is the first of six large paintings in oil memorializing pioneers of American medicine which the artist, Dean Cornwell, will complete in the next few years. Others in the series will be "Dr. Oliver Wendell Holmes," "Dr. Ephraim McDowell," "Dr. Crawford W. Long," "Dr. William T. G. Morton," "Major Walter Reed," and one woman "Dorothea Lynde Dix," who while not a physician stimulated physicians to study insanity and feeble-mindedness. Arrangements to supply physicians free with full color reproductions of "Beaumont and St. Martin" without advertising and suitable for framing have been made with the owners, John Wyeth & Brothers, 1118 Washington Street, Philadelphia.

"Guard Against Syphilis" is the slogan of the National Social Hygiene Day which is to be observed in Missouri on February 1 according to the State Health Commissioner, Dr. Harry F. Parker. This is the third annual observance of this nationwide attack on syphilis. Public health workers, voluntary agencies, civic and welfare groups, service clubs and women's organizations will take part in the observance. The following points are being stressed in the syphilis program: (1) Guard against syphilis by telling the American people about this dangerous disease, how it can be prevented and cured. (2) Guard against syphilis in youth by strengthening the efforts of church, home and school to provide better facilities for sex education, character development and preparation for marriage. (3) Guard against syphilis in marriage and childhood by encouraging good laws and their observance, requiring examinations for all persons about to marry and for all expectant mothers. (4) Guard against syphilis by attacking prostitution and quackery, two arch accomplices of the disease. (5) Guard against syphilis by supporting adequate voluntary and official health programs, both state and local. Free material on this subject may be obtained by writing the State Board of Health, Jefferson City.

Mead Johnson & Company is preparing a new publication devoted to the physicians' hobbies and achievements in the field of music. Historical or biographical items of doctors' orchestras, glee clubs, with or without illustrations, will be welcomed. Items should be sent to Mead Johnson & Company, Evansville, Indiana. Copies of their recent publication, "Paregon," devoted to fine art by doctors, are still available.

The Mississippi Valley Medical Society is again offering a \$100 prize, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine, the award to be made at the annual session of the society September 27 to 29, 1939. Entrants must be members in good standing of their county medical societies. The manuscript must not exceed 5000 words and five copies must be submitted before May 1, 1939, to the Secretary, Dr. Harold Swanberg, 209 W. C. T. U. Building, Quincy, Illinois.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Ampoules Ephedrine Sulfate—Abbott, 0.05 Gm. ($\frac{3}{4}$ grain) 1 cc.

Solution of Epinephrine Hydrochloride 1:1000, 1 fluid ounce bottle

Solution of Epinephrine Hydrochloride 1:1000, 1 cc. ampoule

Thiamin Chloride—Abbott

Tablets Thiamin Chloride—Abbott, 0.33 mg.

Tablets Thiamin Chloride—Abbott, 1.0 mg.

Tablets Thiamin Chloride—Abbott, 3.3 mg.

Ampoules Thiamin Chloride—Abbott, 6.66 mg.

Iodeikon Emulsion Powder—Abbott

Ampoules Estrone, 0.5 mg. in Oil, 1 cc.

Pentothal Sodium—Abbott

Ampoules Pentothal 1.0 Gm. ($15\frac{1}{2}$ grains),

Buffered with Sodium Carbonate 0.6 Gm.

Ampoules Pentothal 0.5 Gm. ($7\frac{1}{2}$ grains),

Buffered with Sodium Carbonate 0.3 Gm.

Gane & Ingram, Inc.

Aminophylline—Gane

Gilliland Laboratories, Inc.

Antipneumococcic Serum, Refined and Concentrated, Type I

Antipneumococcic Serum, Refined and Concentrated, Type II

Antipneumococcic Serum, Refined and Concentrated, Types I and II

Chas. C. Haskell Co., Inc.

Whole Leaf Tablets Digitalis "Haskell," $1\frac{1}{2}$ grains

Hixson Laboratories, Inc.

Diphtheria Toxin for the Schick Test (Diluted), 100 test size package

Jensen-Salsbery Laboratories, Inc.

Anti-Erysipeloid Serum

Lederle Laboratories

Solution Epinephrine Hydrochloride 1:1000, 1 fluid ounce bottle

Solution Epinephrine Hydrochloride 1:1000, 1 cc. ampoule

Solution Epinephrine Hydrochloride 1:1000, 5 cc. vial

Eli Lilly & Co.

Elixir Amytal, 2 grains per ounce

Elixir Amytal, 4 grains per ounce

Tuberculin Ointment (Wolff)—Lilly

Maltbie Chemical Co.

Ampuls Caffeine with Sodium Benzoate, 0.5 Gm. ($7\frac{1}{2}$ grains), 2 cc.

Ampuls Sodium Thiosulfate—Maltbie, 10 cc.

Sulfanilamide—Maltbie

Sulfanilamide Tablets, 5 grains

S. M. A. Corporation

SMAco Nicotinic Acid 50 mg. tablets

SMAco Nicotinic Acid 25 mg. tablets

The Upjohn Company

Hypodermic Tablets Strophanthin 1/200

Hypodermic Tablets Digitalin (0.00065 Gm.) 1/100 grain

Solution Pituitary Extract—U. S. P.

Ampoules Solution Pituitary Extract U. S. P.—Upjohn, $\frac{1}{2}$ cc.

Ampoules Solution Pituitary Extract U. S. P.—Upjohn 1 cc.

Carbromal Tablets, 5 grains

U. S. Standard Products Co.

Solution Epinephrine Hydrochloride 1:1000, 1 fluid ounce bottle

Solution Epinephrine Hydrochloride 1:1000, 1 cc. ampoule

Winthrop Chemical Co., Inc.

Tablets Pyramidon, 2 grains

ORGANIZATION ACTIVITIES

COMMITTEE ON MEDICAL ECONOMICS

The American Medical Association has set February 28 as the deadline for returns from state and county medical societies on the Survey of Medical Care. Have you sent in your summary blank? If not, please complete the survey in your county as soon as possible and forward the summary blank together with the returns on form 1F to the American Medical Association immediately thereafter. The pink copy of the summary blank is to be forwarded to the State Association. The State Association report cannot be completed until the summaries from the county societies are received. Every county society secretary is urged to give this matter prompt attention and see that the survey in his county is completed at once.

CARL F. VOHS, M.D., Chairman.

NATIONAL HEALTH PROGRAM SUBMITTED TO CONGRESS

On January 23 President Roosevelt transmitted to Congress "for careful study" the report of the Interdepartmental Committee to Coordinate Health and Welfare Activities proposing a National Health Program. The text of the President's message to Congress follows:

In my annual message to the Congress I referred to problems of health security. I take occasion now to bring this subject specifically to your attention in transmitting the report and recommendations on national health prepared by the Interdepartmental Committee to coordinate health and welfare activities.

The health of the people is a public concern; ill health is a major cause of suffering, economic loss and dependency; good health is essential to the security and progress of the nation.

Health needs were studied by the Committee on Economic Security which I appointed in 1934 and certain basic steps were taken by the Congress in the social security act. It was recognized at that time that a comprehensive health program was required as an essential link in our national defenses against individual and social insecurity. Further study, however, seemed necessary at that time to determine ways and means of providing this protection most effectively.

In August 1935 after the passage of the social security act, I appointed the Interdepartmental Committee to coordinate health and welfare activities. Early in 1938 this committee forwarded to me reports prepared by their technical experts. They had reviewed unmet health needs, pointing to the desirability of a national health program and they submitted the outlines of such a program. These reports were impressive. I therefore suggested that a conference be held to bring the findings before representatives of the general public and of the medical public health and allied professions.

More than 200 men and women, representing many walks of life and in many parts of our country, came together in Washington last July to consider the technical committee's findings and recommendations and to offer further proposals. There was agreement on two basic points: the existence of serious unmet needs for medical service; and our failure to make full application of the growing powers of medical science to prevent or control disease and disability.

I have been concerned by the evidence of inequalities that exist among the states as to personnel and facilities for health services. There are equally serious inequalities of resources, medical facilities and services in different sections and among different economic groups. These inequalities create handicaps for the parts of our country and the groups of our people which most sorely need the benefits of modern medical science.

The objective of a national health program is to make available in all parts of our country and for all groups of our people the scientific knowledge and skill at our command to prevent and care for sickness and disability; to safeguard mothers, infants and children; and to offset through social insurance the loss of earnings among workers who are temporarily disabled.

The committee does not propose a great expansion of federal health services. It recommends that plans be worked out and administered by states and localities with the assistance of federal grants-in-aid. The aim is a flexible program. The committee points out that while the eventual costs of the proposed program would be considerable, they represent a sound investment which can be expected to wipe out, in the long run, certain costs now borne in the form of relief.

We have reason to derive great satisfaction from the increase in the average length of life in our country and

from the improvement in the average levels of health and well-being. Yet these improvements in the averages are cold comfort to the millions of our people whose security in health and survival is still as limited as was that of the nation as a whole fifty years ago.

The average level of health or the average cost of sickness has little meaning for those who now must meet personal catastrophes. To know that a stream is four feet deep on the average is of little help to those who drown in the places where it is ten feet deep. The recommendations of the committee offer a program to bridge that stream by reducing the risks of needless suffering and death, and of costs and dependency that now overwhelm millions of individual families and sap the resources of the nation.

I recommend the report of the Interdepartmental Committee for careful study by the Congress. The essence of the program recommended by the committee is federal-state cooperation. Federal legislation necessarily precedes, for it indicates the assistance which may be made available to the states in a cooperative program for the nation's health.

The program as recommended by the Technical Committee on Medical Care to the Interdepartmental Committee as submitted to the President on February 14, 1938, was considered by the House of Delegates of the American Medical Association in a special session on September 16 and 17, 1938. The action of the House of Delegates was published in the October issue of *THE JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION*. A special committee, of which Dr. Irvin Abell, Louisville, President of the American Medical Association, was chairman, appointed by the Speaker of the House of Delegates to confer and consult with federal representatives relating to the proposed National Health Program, met with the Interdepartmental Committee in Washington on October 30, 1938.

In a joint interview, following the conference, by Dr. Irvin Abell and Miss Josephine Roche, it was pointed out that the conference had reached no definite conclusions or specific plans for cooperation, nor had there been any abandonment of specific positions taken by either group in relationship to the program. The representatives of the government again explained the detailed concept of the National Health Program. The representatives of the American Medical Association indicated the actions taken by the House of Delegates, which involved approval of the extension of public health service specifically related to the prevention of disease and the provision of hospitals and allied institutions and of government assistance for the care of the indigent when the need can be established. The medical representatives pointed out that in hospitalization and the care of the indigent the administration should be simple and placed in the hands of responsible public officials who would cooperate with local medical societies. The medical representatives again expressed opposition to compulsory sickness insurance and the fear of the fact that the insistence on such a system by the government would be "bureaucratic, costly and political."

In a brief report on the conference, President Irvin Abell said:

The reception accorded our committee was quite friendly and the discussions evinced the same spirit on both sides. They were fruitful in bringing out a better understanding of opposing points of view and in focusing attention on the discrepancies in data and statistics on which such points of view are founded. While tentative agreement in principle, not in methods of application, was reached on four of the recommendations, the conference was stymied by the question of compulsory sickness insurance. The Interdepartmental Committee is to hold conferences with representatives of other groups, notably the American Public Health Association, the American Dental Association, the American Hospital Association and the American Nursing Association. It was suggested that our committee return at a later date for further conference presumably after the above named organizations, through their representatives, have had opportunity to express their views. If this invitation is accepted an early date was suggested, as the Interdepartmental Committee will prepare its report to be submitted to the President at the opening of the Congress, when its recommendations may be embodied in proposed legislation.

According to the published text of an official summary of the report on the National Health Program by the Interdepartmental Committee which was transmitted by the President to Congress it would appear from the following paragraphs of the summary that no changes were made in the report as originally submitted to the President on February 14, 1938.

Reports and recommendations of the Interdepartmental Committee's technical subcommittee on medical care were submitted, at the suggestion of the President, to the National Health Conference held in Washington July 18 to 20, 1938, which included representatives and members of professional groups, employers, welfare administrators and the general public. From discussions at that time and subsequently, the committee finds that there is no significant disagreement with the facts then presented and now used as the basis of its recommendations. It believes, further, that its findings and general proposals are substantiated by the direct experience of a wide representation of those concerned as potential patients, as employers and as public servants, and as members of the professions associated with the care of the sick.

The committee recommends that the federal government provide grants-in-aid to the states to assist them in developing programs of medical care.

A state program of medical care should take account of the needs of all persons for whom medical services are now inadequate. Attention has often been focused on those for whom local, state or federal governments, jointly or singly, have already accepted some degree of responsibility through the public assistance provisions of the social security act and through work relief or general relief, and upon those who, though able to purchase food, shelter and clothing, are unable to pay for necessary medical care. The committee's studies show, however, that attention should more properly be focused on the needs of the entire population or, at least, on the needs of all low-income groups. Medical services are now inadequate among self-supporting people with small incomes as well as among needy and medically needy persons.

The committee believes that choice of the groups to be served, the scope of the services furnished and the methods used to finance the program should be made by the states, subject to conformity of state plans with standards necessary to insure effective use of the federal grants-in-aid.

To finance the program, two sources of funds could be drawn upon by the states: (a) general taxation or special tax assessments, and (b) specific insurance contributions from the potential beneficiaries of an insurance system. The committee recommends grants-in-aid to states which develop programs using either method, or a combination of the two, to implement programs of medical care.

The recommendations of the American Medical Association on a general program of medical care as adopted by the House of Delegates in special session September 16 and 17, 1938, follow:

Under Recommendation IV on a General Program of Medical Care: Your committee approves the principle of hospital service insurance which is being widely adopted throughout the country. It is susceptible of great expansion along sound lines, and your committee particularly recommends it as a community project. Experience in the operation of hospital service insurance or group hospitalization plans has demonstrated that these plans should confine themselves to provision of hospital facilities and should not include any type of medical care.

Your committee recognizes that health needs and means to supply such needs vary throughout the United States. Studies indicate that health needs are not identical in different localities but that they usually depend on local conditions and therefore are primarily local problems. Your committee therefore encourages county or district medical societies, with the approval of the state medical society of which each is a component part, to develop appropriate means to meet their local requirements.

In addition to insurance for hospitalization we believe it is practicable to develop cash indemnity insurance plans to cover, in whole or in part, the costs of emergency or prolonged illness. Agencies set up to provide such insurance should comply with state statutes and regulations to insure their soundness and financial responsibility and have the approval of the county and state medical societies under which they operate.

Your committee is not willing to foster any system of compulsory health insurance. Your committee is convinced that it is a complicated, bureaucratic system which has no place in a democratic state. It would undoubtedly set up a far reaching tax system with great increase in the cost of government. That it would lend itself to political control and manipulation there is no doubt.

Your committee recognizes the soundness of the principles of workmen's compensation laws and recommends the expansion of such legislation to provide for meeting the costs of illness sustained as a result of employment in industry.

Your committee repeats its conviction that voluntary indemnity insurance may assist many income groups to finance their sickness costs without subsidy. Further development of group hospitalization and establishment of insurance plans on the indemnity principle to cover the cost of illness will assist in solution of these problems.

LECTURES ON PEDIATRICS AND OBSTETRICS

Lectures to the laity on pediatrics and obstetrics being given under the auspices of the State Board of Health, the Committee on Maternal Welfare of the State Association and the Extension Service of the University of Missouri College of Agriculture are scheduled as follow for February and March:

PEDIATRICS			Date	County	County Extension Agent
Date	County	County Extension Agent	24	Medical Group	
February			27	New Madrid	Leslie Broom, New Madrid
1-2	Jasper	Carl Lewis, Carthage	28-29	Pemiscot	M. D. Amburgey, Caruthersville
3	Medical Group		30	Dunklin	C. R. Talbert, Kennett
6-7	Lawrence	John W. Woodward, Mt. Vernon	31	Medical Group	
8	Dade	E. H. Hess, Greenfield	OBSTETRICS		
9	Cedar	W. E. Yates, Stockton	Date	County	County Extension Agent
10	Medical Group		February		
13	Polk and Dallas	R. C. Rubottom, Boli- var, and T. A. Black- lock, Buffalo	1-2	Johnson	Virgil Burk, Warrensburg
14-15	Greene	C. C. Keller, Springfield	3	Medical Group	
16	Webster	Vance Henry, Marshfield	6-7	Bates	John Burkeholder, Butler
17	Medical Group		8-9	Vernon	L. W. Doran, Nevada
20	Laclede	Hensley Hall, Lebanon	10	Medical Group	
21	Camden	J. N. Holt, Camdenton	13-14	Cass	Horace M. Hunt, Harrisonville
22-23	Pulaski	George Hardy, Waynesville	15-16	Jackson	E. M. Woods, Independence
24	Medical Group		17	Medical Group	
27	Phelps	Harold Canfield, Rolla	20-21	Ray	Ira R. Thornton, Richmond
28	Dent	Clarence McGill, Salem	22-23	Clay	R. J. Laughlin, Liberty
March			24	Medical Group	
1-2	Crawford	Eugene Moore, Steelville	27-28	Platte	L. J. Wormington Platte City
3	Medical Group		March		
6-7	Washington	Paul M. Bernard, Potosi	1-2	Buchanan	Roscoe V. Hill, St. Joseph
8	Iron	Paul M. Bernard, Potosi	3	Medical Group	
9	Reynolds	Ted L. Joule, Ellington	6-7	Clinton	Andrew Adam, Plattsburg
10	Medical Group		8-9	Caldwell	Leonard Voss, Kingston
13	Madison	J. B. Caldwell, Fredericktown	10	Medical Group	
14	St. Francois	Paul H. Teal, Farmington	13-14	Daviess	R. S. McClelland, Gallatin
15	Ste. Genevieve	B. K. Miller, Ste. Genevieve	15-16	DeKalb	F. P. Ward, Maysville
16	Perry	J. A. Fairchild, Perryville	17	Medical Group	
17	Medical Group		20-21	Holt	D. H. Carter, Mound City
20-21	Cape Girar- deau	E. T. Mallinckrodt, Jackson	22-23	Atchison	Vernon C. Jolley, Rockport
22	Scott	Frank B. Veatch, Benton	24	Medical Group	
23	Mississippi	R. Q. Brown, Charleston	27-28	Nodaway	A. J. Dinsdale, Maryville
			29-30	Andrew	Wayne M. Sandage, Savannah
			31	Medical Group	

Secretaries of these counties are urged to contact the Extension Agent in his county and make arrangements for these lectures.

MISCELLANY

THE PHYSICIAN'S INCOME TAX—1939

The following material on the Federal Income Tax Law is reprinted from the *Journal of the American Medical Association*, issue of January 14, 1939, and information on the Missouri law was furnished by the St. Louis office of the Auditor of the State of Missouri.

Federal Income Tax

The Revenue Act of 1938 amended in numerous respects the prior income tax law, but none of the changes made relate to physicians as a class distinct from the main body of federal income taxpayers.

Every one who is required to make a federal income tax return must do so on or before March 15, unless an extension of time for filing his return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must state fully the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on residents of the United States and on all citizens of the United States regardless of their places of residence is 4 per cent on net income in excess of the exemptions and credits.

WHO MUST FILE RETURNS

1. If gross income was less than \$5,000 during 1938, a return must be filed (a) by every unmarried person, and by every married person not living with her husband or his wife, whose net income was \$1,000 or more, and (b) by every married person living with her husband or his wife, whose net income was \$2,500 or more. If the aggregate net income of husband and wife, living together, was \$2,500 or more, each may make a return or the two may unite in a joint return.

2. Returns must be filed by every person whose gross income in 1938 was \$5,000 or more, regardless of the amount of his net income and of his marital status. If the aggregate gross income of husband and wife, living together, was \$5,000 or more, they must file either a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changed during the year, the personal exemption and credit must be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is to be considered as a month.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain the necessary blank from the local collector of internal revenue.

The following discussion covers only matters relating specifically to physicians. Full information concerning questions of general interest may be obtained from the official return blank and from the collectors of internal revenue.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits

from investments and speculation and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In computing the normal tax, but not the surtax, there may be subtracted from net income from all sources an amount equal to 10 per cent of the earned net income, except that the amount so subtracted shall in no case exceed 10 per cent of the net income from all sources. Earned income means professional fees, salaries and wages received as compensation for personal services, as distinguished from receipts from other sources.

The first \$3,000 of a physician's net income from all sources may be regarded under the law as earned net income, whether it was or was not in fact earned within the meaning set forth in the preceding paragraph. Net income in excess of \$3,000 may not be claimed as earned unless it in fact comes within that category. No physician may claim as earned net income any income in excess of \$14,000.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. So far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment, such as is described above, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and

laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation reductions taken year by year over its useful life, as described below.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price or, if purchased before March, 1913, either its fair market value as of that date or its original cost, whichever may be greater. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in his individual case.

In a Treasury Decision, approved February 28, 1934, No. 4422, it is held, among other things, that

1. The cost to be recovered shall be charged off over the useful life of the property.
2. The reasonableness of any claim for depreciation shall be determined on the conditions known to exist at the end of the period for which the return was made.
3. Where the cost or other basis of the property has been recovered through depreciation or other allowances, no further deduction for depreciation shall be allowed.
4. The burden of proof will rest on the taxpayer to sustain the deduction claimed.
5. The deduction for depreciation in respect to any depreciable property for any taxable year shall be limited to such ratable amount as may reasonably be considered necessary to recover during the remaining life of the property the unrecovered cost or other basis.

Particular attention is called to the last of the foregoing provisions. If, in prior years, rates have been claimed which, if continued, will fully depreciate the cost, less salvage, before the end of its useful life, based on conditions now known, a reestimate of the remaining useful life should now be made and the portion of the cost that had not been depreciated at the beginning of the year 1938 (for a return for the year 1938) should be spread over this reestimated life.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including

amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said in respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Contributions to Charitable Organizations.—For detailed information with respect to the deductibility of charitable contributions generally, physicians should consult the official return blank or obtain information from the collectors of internal revenue or from other reliable sources. A physician may not, however, deduct as a charitable contribution the value of services rendered an organization operated for charitable purposes.

Social Security Taxes.—The excise taxes imposed on employers by section 804, title VIII, and section 901, title IX, of the Social Security Act, commonly referred to as old age and unemployment benefit taxes, are deductible annually by employers in computing net income for federal income tax purposes. If the taxpayer's return is made on a cash basis, as are the returns of practically all physicians, the taxes are deductible for the year in which they are actually paid. If the return is made on an accrual basis, the taxes are deductible for the year in which they accrue, irrespective of when they are actually paid. Employees, including physicians whose employment brings them within that category, may not deduct the tax imposed on them by section 801, title VIII, of the Social Security Act, generally referred to as the old age benefits tax. If, however, the employer assumes payment of the employee's tax and does not withhold the amount of the tax from the employee's wages, the amount of the tax so assumed may be deducted by the employer, not as a tax paid, but as an ordinary business expense.

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable,

may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expense incurred in the defense of a suit for malpractice is deductible as a business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Missouri Income Tax

Returns should be filed by March 15, 1939. Failure to file by that time subjects the taxpayer to a penalty which is his tax being doubled. A verified copy of the Federal return filed should be attached to the Missouri State Income Tax return. Returns should be filed with the City Assessor of St. Louis, or for those who reside outside of St. Louis, the return should be filed with the assessor of the county in which he lives.

All income received with the exception of dividends from national banks located in the State of Missouri and interest on Liberty Bonds should be reported.

The personal exemption for married men is \$2,000. Single persons, head of a household, that is, supporting one or more persons under one roof, are entitled to an exemption of \$2,000. Single persons with no dependents are entitled to an exemption of \$1,000. For each dependent under 18 years of age, or mentally or physically incapable of self-support there is an additional exemption of \$200.

All expenses on automobiles used for business may be deducted; that is, gasoline, oil, garage rent, general upkeep and depreciation. Office expense may all be deducted including salaries and wages, material and supplies, rent, repairs, light, heat, electricity, towel service, telephone or whatever is involved in keeping up the office.

Subscriptions to all medical journals and dues to all medical societies are deductible as well as interest paid, taxes, losses by fire, storm or theft not compensated for by insurance. All donations to organized charities can be deducted but this amount is not to exceed 15 per cent of the net income shown on the return.

OBITUARY

S. A. GRANTHAM, M.D.

Samuel Ashby Grantham, Sr., Joplin, born in St. Louis in 1866 died at Joplin, July 31, 1938, after an illness of a year's duration bringing forty years of active surgery to a close. A graduate of the Marion Sims Medical College in 1897 he enjoyed two enriching experiences immediately after graduation, an active post in Cuba with the Sixth Missouri Regiment and a period of study at the New York Polyclinic. Going to Joplin in 1900 he

quickly won the hearts of injured miners, their families and employers by his aggressive dexterity and tender thoroughness. A frequent visitor at Murphy's, Senn's and the Mayo operating tables he brought many of their advanced technics to his patients in the hill and mine country of southwest Missouri.

In 1912 when in the large centers spinal fusion was first being evaluated Dr. Grantham developed his own method. Tuberculosis among the miners often appeared as Pott's disease in their children and neglected compression fractures supplied a pitiful abundance of weak twisted spines. Hey Groves of England and later many American orthopedists recognized the merit of the method. Dr. Grantham served as chief of staff at St. John's and Freeman hospitals and as president of the Jasper County Medical Society.

On one occasion he cancelled an engagement to present his spinal work before the Southern Medical Association in order to remove an acute and rupturing appendix for a friend feeling that he could not leave his sick patient. This marks a lesson for all of us in steadfastness to the highest trust we hold, which is not with fame but with our sick.

This brief and inadequate memorandum cannot be more fittingly closed than by the cryptic letters with which our affectionate farewells always ended: POMOET! "Part of my outfit, every time!"—S. A. G., Jr., M.D.

HENRY C. MURPHY, M.D.

Dr. Henry C. Murphy, Richland, a graduate of Louisville Medical College, Louisville, 1881, died October 3, 1938, at his home, aged 86 years.

Dr. Murphy was born near Lebanon and attended school there before going to the University of Missouri. He read medicine in the office of the late Drs. McComb and Henderson, afterward teaching school to obtain money to attend medical school. He went to the University of Michigan, then to the Louisville Medical College where he obtained his degree in 1881. He interned in the Louisville City Hospital. He began practice in St. Clair but went to Richland in 1882.

He had spent fifty-six years in his community and was loved as a physician and as a citizen. He was elected an honor member of the Pulaski County Medical Society in 1934.

Surviving is his widow, Mrs. Crotia Cunningham Murphy.

JAMES A. CROCKETT, M.D.

Dr. James A. Crockett, Stanberry, a graduate of the University of Missouri School of Medicine, Columbia, 1903, died at his home of heart disease, October 28, 1938, aged 62 years.

He was born in Tazewell, Virginia, and moved with his family to Fort Worth, Texas, then to Albany, Missouri, and later to Stanberry. Dr. Crockett attended the public schools and Stanberry Normal before going to the University of Missouri for his medical work. He interned at the Ensworth Hospital, St. Joseph. He practiced in Coffey, Missouri, for two years before locating in Stanberry where he remained in active practice. Despite ill health for the last year and a half he continued to practice.

Dr. Crockett served as alternate delegate several times, as vice president and was president of the Gentry County Medical Society at the time of his death. He had served as Councilor of the former Third Councilor District. He had been county coroner and president of the Stanberry board of public works and was active in all civic movements.

He is survived by his widow, Mrs. Nancy Ahart Crockett, one daughter, seven sisters and four brothers.

BOOKS FOR LEISURE MOMENTS

A THOUSAND AND ONE

In an earlier review we discussed the formula for wooing sleep as recommended by Dr. Jacobson. But if you, reader, have not persisted until the elusive muse comes to your beck we recommend "Sleep; The Secret of Greater Power and Achievement" (Bobbs-Merrill Co., Indianapolis) by Ray Giles. Here you will find a number of remedies. It may be that you would like to sprinkle red pepper over the bottom of a glass, fill it with boiling milk—and drink the whole mess down as quickly as possible. Or, in your case, something simple like placing the pillow under your feet instead of your head might provide the sovereign remedy you have been seeking all these years since the stock market crashed.

Mr. Giles has devoted himself to helping the great American public get more from life. In previous publications he has told sundry ways of increasing the yield from its earning. Now he brings a collection of anecdotes designed to make personal lives more worth living.

The chapter headings evoke titillating cerebral anticipation but their substance does not live up to the implied promises. For example, "What Really Happens in Bed" proves an ordinary account of the twistings and turnings of the average individual. "Better Days Make Better Nights" is not at all the sort of thing one might anticipate, perhaps because Scherazade is not included in the galaxy of stars. But to be thoroughly modern Giles includes a chapter in which he invites the reader to be his own Professor Quiz.

What may be said for the volume depends on whether among its profusion of sedative practices the reader will find one to solve his own dilemma and this can be answered only after he has read it. That it debunks the soporific habit, however, proves it a not useless addition to the literature.

B. Y. G.

APPLIED CHILD PSYCHOLOGY

It has been just a little over four years since an event occurred in the remote North which is still one of the wonders of the modern world. The interest of every adult has at one time or another been focused upon the drama that took place there. Legislatures have taken official cognizance of that occurrence. Radios, newspapers, magazines, movies, every medium which has to do with the exchange of ideas, all have been concerned with the happenings in that isolated Canadian village.

In general the important role taken by an hitherto obscure country doctor, emblematic of thousands of American physicians, has not been overlooked. For its part in the birth and rearing of the Dionne quintuplets Medicine as symbolized in the person of Dr. Allan Roy Dafoe, has aroused and maintained the continued wonder of the world. Wonder that a backwood's physician without benefit of hospital obstetrical technic could preserve the feeble spark of life fast ebbing from the bodies of five premature babies. Wonder that modern medical science could pull each one of these waifs through the ills that beset childhood. Wonder that scientific effort has reached that state of perfection at which it could perform a miracle in causing to survive this group of quintuplets when it has been unable to preserve the lives of 45 other similar groups born during the recorded history of human genetics.

Likely to arouse even greater wonder is the fact these five girls on whom the eyes of the entire world are focused could grow up and pass through a reasonably normal childhood. Back of it all must be the shrewd practical common sense of Dr. Dafoe who has not hesi-

tated to associate with him men better skilled in the special fields than he. The applause belongs to him for there can be no question that it is his seasoned judgment, similar to that of thousands of other less famed practitioners, that is responsible for the phenomenal success of a laboratory experiment in applied psychology.

William E. Blatz, Professor of Child Psychology at the University of Toronto, tells the story of the psychological and emotional development of the quintuplets in "The Five Sisters" (Wm. Morrow & Co., New York). At Dr. Dafoe's invitation he assumed the task of making human beings out of them. He lacked a model; he devised a method. He lacked a personnel; he trained one. He was hampered by the thousands of the curious who insisted upon a pilgrimage to the home of the famous sisters; he overcame this handicap. He made the most of his opportunity to give practical application to the abstract principles of child psychology which have been developed during the twentieth century.

The result is magnificent. He taught each of these little girls to fit into the social scheme of things, both as it affected each of them and all of them, and as it affected the adults with whom they came into contact. He saw to it that they developed adequate habits of eating and that they could feed themselves at the age of two years. He taught them to recognize property rights. He largely overcame their temper tantrums and saw to it that they grew up with a minimum of fears. He insisted that they be socialized human beings even though they were the cynosure of adoring adults.

There is a lesson to be gained by every mother from the perusal of Dr. Blatz' book. He does not moralize on the system of child training to be employed. But in short, sprightly passages he indicates in a general way the nature of the particular problems of childhood. He points the road to their solution. Or rather he suggests methods so that the problems need never arise. Children may be glad that the author recommends no spanking. Under the relatively ideal conditions of the quintuplets' existence spankings may have been unnecessary. But for the child who is less fortunately situated with respect to contemporaneous brothers or sisters it is probable that an occasional spanking will prove a deserved and necessary hindrance to repeated delinquency.

B. Y. G.

RELEGATION OF THE ARMCHAIR PHILOSOPHER

There are a lot of people who have a lot of ideas on what is wrong with the world. The old iron stove that warms the cross roads store serves as a sounding board for an unending number of unlearned dissertations upon what is wrong with the country. Its counterpart, the modern tea room or fashionable cocktail bar serves as amphitheater for bored men and women to give vent to their half-baked ideas of what is wrong with marriage. There is nothing about these armchair philosophers to be condemned unless it be the study they have made to ascertain the underlying facts of the problem.

The divorce rate in this country is reported to be up some 7 per cent. If that be true it might give rise to the assumption that there is something wrong with marriage. Perhaps something ought to be done about it. But before anything is done about it a thorough reading and rereading of Lewis M. Terman's "Psychological Factors in Marital Happiness" (McGraw-Hill, New York) is in order. The author who is head of the Department of Psychology at Leland Stanford University has studied the psychological attitudes of human beings for many years; he is one of the world's outstanding authorities upon this inexact science, a handmaiden of medicine.

Unlike most books in this field it is not based upon

armchair speculation. Dr. Terman devised a set of questions which were answered by 2484 married and divorced persons. Of these the answers to over 400 questions supplied by 792 married persons constitute the basis of the present volume. More than a quarter million items. Applying exact statistical methods to the information, voluntarily and anonymously offered, the author bowls over most of the generally accepted concepts of the factors relating to marital happiness.

Sexual compatibility, the *sine qua non* of the average dissertation on marital happiness, emerges from this exhaustive study as of relative unimportance. The personality traits of the individual partners to the marriage are the determinants of the degree of happiness elicited by the procedure which in some fashion characterizes all civilizations. The background enjoyed by the individual partners during youth, the attitude of their parents toward them during childhood; these are only secondary in importance.

The background factors that have to do immediately with the marriage, family income, occupation of the husband, presence or absence of children, birth order of the children, spouse difference in age and schooling (except at the extremes) are of little importance in determining the success of a particular marriage. Yet these circumstances have all too often been incriminated by previous students of the subject who have not collected and collated sufficient data to justify the expression of conclusions.

From Professor Terman's study one dominant note emerges. The individual who has been trained (either through the efforts of others or through his own efforts) to find happiness in whatever situation in life he finds himself will find happiness in marriage. The author proposes a prediction test to ascertain the emotional adequacy for marriage of individuals based entirely upon their own personality factors. He reports that results at the two extremes are quite valid as applied to his observed data, those in the middle somewhat less valuable. He is of the opinion that should the test reveal a low quotient a pause should be made before the wedding bells ring out, lest both spouses thereby ring in an era of unhappiness which may end in divorce.

An interesting by-product of the study is the light it casts upon the changing morals of the people encompassed. Most surprising, perhaps, is an almost complete reversal of the Victorian code, not always with an adverse effect upon marital happiness.

It is to be hoped that the studies which Professor Terman and his associates have inaugurated will be extended, that they will be repeated in other parts of the country, that their meaning will be concretely applied to the problems of child training, that their end result can only be the increased happiness of the whole population and especially the greater happiness of marital partners, those whose love and devotion perpetuate the race.

B. Y. G.

CONSTIPATION CONTRAST

Three hundred million dollars is alleged to be spent in this country annually for drugs which will produce an evacuation of the bowels. Such preparations are in great demand by persons who will not realize that there is no alarm clock in the intestinal tract. Furthermore, these persons, impelled by clever advertisers, remain convinced that a daily movement is necessary to health. We are privileged to review two books intended for the layman, both dealing with the subject of intestinal elimination.

"Our Common Ailment" (Dodge Publishing Co., New York), is written by Dr. Harold Aaron, Medical Consultant to the Consumers Union. It is a well planned, logical presentation, largely devoid of medical terminology, intended to afford a thorough understanding of

the physiology of the intestinal tract. Yet it is entirely scientific in its approach to the problem.

The author points out the anatomy and innervation of the intestinal tract. He makes it clear that Nature if not abused will do all the eliminating that is necessary to be done. He deplores the haste of those persons who would aid Nature by employment of the "gentle, non-irritating vegetable preparation" which is intended by the manufacturer to maintain the integrity of this function.

Dr. Aaron depends upon a discussion of the differences in the anatomy of human and herbivorous intestinal tracts to rebunk the roughage fallacy. In fact, he attributes the increasing use of bran and bran products to the efforts of manufacturers to find a sales outlet for products no longer salable when the automobile displaced the horse. He recommends bran for horses and cows. He says that the long cecum of these animals supplies ferments with which these almost woody substances may be digested to supply starch. He mentions the increasing evidence that incriminates bran and bran products as irritating to the human intestine; he does not forget that bran at times produces intestinal obstruction.

"Our Common Ailment" may be profitably read by every layman. It would be well if physicians would recommend it to those patients who are unduly concerned over the bowel function. It will serve to emphasize their own instruction to those persons who picture the direst sort of consequences if they do not have an action every 8 a. m.

By contrast, "How to Conquer Constipation" (J. B. Lippincott, Philadelphia) by Dr. J. F. Montague, Medical Director of the New York Intestinal Sanitarium, is loosely written, frequently unphysiologic in point of view, and likely to increase rather than dispel the fears of the bowel-conscious persons. Dr. Montague, for example, espouses the view that toxins are absorbed from the colon of the constipated person. But all available scientific evidence points to the belief that only in diarrhea are such poisons likely to be absorbed in the colon and it is not at all certain that they will be even then. He baldly suggests that such poisons are responsible for arthritis and several other conditions, even goiter!

True, Dr. Montague insists that constipation is not the villain that the advertisers would have us believe. But the hasty reader is likely to gain the impression that it is far more villainous than it has hitherto been pictured to be.

Dr. Montague is impressed with the virtues of water in the cure of constipation. How water can keep the stool liquid in the colon, the organ charged with the absorption of water, is by no means clear. But then, there is a method by which water may be used to aggravate constipation, a method which the author describes with tacit approval; that is, by means of colonic irrigations. But—even the most superficial reading of Dr. Aaron's book will dispel the idea that they may be beneficial.

Indeed, the more people will leave their bowels alone, the less they do for them, the better they will function. It is high time that the medical profession makes this clear to as many as will read and heed.

B. Y. G.

ORIENTATION

What this country needs today is not a good five cent cigar. Each political economist has his favorite "need." All of them agree, however, that we need each citizen to orientate himself in relation to the healing arts. If he is informed in the matter he may be depended upon to make an intelligent selection from among the dozen or more healing systems now in vogue. Advocates of each of these systems might be called upon to present their

case, to offer a statement of the benefits which their system offers in comparison with each of the others.

"Health, Hygiene and Hooey" (Bobbs-Merrill, Indianapolis) is our choice for the case of Medicine. It is written by Dr. W. W. Bauer, Director of the Bureau of Health and Education of the American Medical Association. Thoroughly conversant with the facts, accustomed to presenting them to a variety of audiences, Dr. Bauer offers a breezy, entertaining story. His turning of phrases will bring many a hearty chuckle.

Medicine is often attacked today by many persons who are undoubtedly sincere. They mean to be helpful even though they have not assimilated the background, the idealism and the methods of the institution they would destroy. Their appeal is to the great public, sometimes indifferent, sometimes lackadaisical, sometimes misled by zealous reformers. But that public is fundamentally honest. It retains that modicum of common sense which can be depended upon to find the better way. The difficulty of appealing to them is the difficulty of stating the problem so they will become interested in it, will relate it intimately to their lives, that their aroused conscience may be depended upon to insure an American system.

Dr. Bauer has provided the book which will do all these things. Physicians in private practice will be in complete agreement with everything that he writes. They should read the book themselves. More, they must see to it that their patients read it and understand it and discuss it.

B. Y. G.

PAID MEDICAL ADVERTISING IN NEWSPAPERS ADVOCATED

At a meeting of the Committee on Public Relations of the Medical Society of New Jersey at Trenton, December 4, the advisability of a paid advertising program for the medical profession of New Jersey was considered, *The Journal of the American Medical Association* for January 28 reports.

The committee approved of paid institutional advertising in newspapers to acquaint the public better with the ideals, policies, program and work of the county medical societies in New Jersey. The members of the Committee on Public Relations believe that the question of paid advertising should be decided by each county medical society.

The committee recommends the inauguration of such a program by the county medical societies on a county-wide basis. The public must be told how it benefits from a system of medical practice which is free from coercion and political red tape and how politicalization of medicine will result in a poorer type of medical care for them. This proposed advertising program constitutes no departure from medical ethics. Several of the county medical societies have on occasion advertised in newspapers. What is advocated in this program is the advertising of the institution of the private practice of medicine, not the advertising of the individuals who comprise that institution. It is in keeping with medical ethics to try to preserve the best system of medical care, judged by results, which exists anywhere in the world, and to keep it free from unnecessary political restraints.

Each county can be adequately covered through a selective list of newspapers of large circulation. It is for the body of physicians of New Jersey to decide whether improved public relations, and possibly the future status of medicine itself, is worth to them an annual investment approximating the amount received from one office call.

If the county medical societies approve this suggested advertising program, the committee is prepared to undertake the preparation of advertising copy which will be a credit to the institution sponsoring it from the standpoint of both content and typography.

The Committee on Public Relations of the Medical

Society of New Jersey urges that this question be placed on the agenda of county medical societies for its earliest possible consideration. The members of the committee are Drs. Joseph H. Kler, chairman, J. Berkeley Gordon, G. Barton Barlow, Edgar P. Cardwell, Homer I. Silvers and J. Allen Yager.

DISABILITY COMPENSATION SHOULD BE ON LIFETIME BASIS

Compensation for permanent disability after injury should be on the basis of a lifetime, rather than restricted by time or money limitations, Walter G. Stern, M.D., Cleveland, points out in *The Journal of the American Medical Association* for January 28.

In only thirteen states is lifetime the basis for such compensation, Dr. Stern remarks in his review of the conclusions of the International Association of Industrial Accident Boards and Commissions.

Permanent partial disability should be evaluated in percentages of permanent total disability. Both partial and total disability should be estimated according to factors which will vary from case to case. For example, the examining physician must consider age, type of occupation, presence of pain, morale and other psychic factors, as well as preexisting disease made active by the injury or disease which results from the injury. He must also notice such factors as injury or atrophy of soft parts, circulatory changes and swelling, injuries to nerves and tendons and nonunion of fractures.

The federal and all state governments (except Arkansas and Mississippi) now have laws for payment of compensation to injured employees, and practically all have adopted fixed schedules of percentage of loss for certain fixed disabilities.

Uniform compensation laws must be effective in all the states before the physician can properly estimate disability, Lionel D. Prince, M.D., San Francisco, comments in discussing Dr. Stern's paper.

"Great variance in the waiting period, the amount of weekly indemnity and the sums awarded for permanent total disability and partial temporary disability" is found in different states, Dr. Prince declares.

ALLERGIC ECZEMA IN INFANTS

The best results in the treatment of allergic eczemas have been obtained in infants, largely due to their being under more careful and frequent medical supervision, Ben Z. Rappaport, M.D., and Rudolph Hecht, M.D., Chicago, report in *The Journal of the American Medical Association* for January 28.

The authors point out that the effectiveness of treatment of infants is due to the cooperation of the pediatrician, dermatologist and allergist at a time in life when the child is more or less under the constant supervision of the doctor.

The incriminating allergens are manifold. Some can cause eczema by contact with the skin, others by being eaten and still others by a hereditary disposition.

In the treatment of allergic eczema, the allergen must be identified and then removed from the environment or diet. When this is not practical the patient is desensitized.

The causative agent or agents can be determined by skin tests (scratch, patch and intracutaneous), elimination diets and the removal of the patient to an "allergen free" environment.

The advances in medical science during the last two or three decades have given to most of mankind increasing years of life expectancy, freedom from pain, greater assurance of control of some of the most dreaded diseases, constant improvement of hospital facilities and an ever mounting number of discoveries and improvements in methods of diagnosis and treatment.—*Hygeia*.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Buchanan County Medical Society

The Buchanan County Medical Society met at the Missouri Methodist Hospital on December 7 at 8 p. m.

Dr. Gregg Thompson, director of the cancer clinic, gave a complete report on the work of the clinic since it was established in May.

Dr. L. J. Ferguson reported on the work of the insurance blank committee and presented a copy of the insurance blank proposed by the committee for the approval of the Society.

Dr. W. T. Elam, chairman of the general staff executive and supervisory committee, presented Dr. E. M. Shores, chairman of the subcommittee on the proposed fee bill for Social Security and welfare patients, who gave a demonstration by slides of the proposed fee bill. A motion by Dr. Elam, seconded by Dr. J. M. Allaman, directed that copies of the bill be mimeographed and mailed to each member and the bill be voted on at the next meeting.

A motion by Dr. Ferguson that the proposed insurance blank be sent with the fee bill for approval carried.

Dr. Irwin I. Rosenthal was elected to active membership.

Proposed amendments to the constitution and by-laws were read as follow:

1. Amend the constitution by adding the office of president-elect and the duties of the president-elect to the officers already listed.

2. Amend the by-laws under the heading "Active Members" to read, "Active membership may be extended to applicants for membership by transfer from another county medical society affiliated with the Missouri State Medical Association, provided the applicant is an active member in good standing of the same and has established himself in the practice of medicine in Buchanan County at least sixty days before date of his application."

3. Amend the by-laws under the heading "Standing Committees" to read, "The president will appoint two

additional members of the Society to the cancer committee on or about the first of May of each year instead of the usual time of appointing other officers, namely January 1."

4. Amend the by-laws under the heading "Election of Officers" to read: "Officers of the Society shall be elected at the regular December meeting in each year. Nomination shall be by informal ballot. Any member receiving a majority of the votes cast shall be declared elected. If no member receives a majority of votes, an election ballot shall be taken, the balloting continuing for as many as two election ballots on the three members receiving the highest number of votes until one shall receive a majority. If after two election ballots on the three members receiving the highest number of votes a majority shall not be obtained by any one, then the ballots shall continue, balloting only on the two receiving the highest number of votes until one has received a majority whereupon he shall be declared elected."

A letter concerning the tuberculosis stamp bond was considered and no action taken.

Officers for 1939 were elected as follow: President, Dr. F. X. Hartigan; vice president, Dr. T. L. Howden; secretary, Dr. O. Earl Whitsell; treasurer, Dr. J. M. Bell; member board of censors, Dr. S. E. Senor; delegate, Dr. W. Roger Moore; member board of trustees, Dr. James O'Donoghue; member auxiliary committee on public policy, Dr. E. E. Wadlow.

Meeting of December 15

Following a banquet at the Moila Club on December 15 with wives and friends as special guests the annual installation meeting was called to order by Dr. E. E. Wadlow as master of ceremonies.

Dr. Wadlow introduced Mrs. Charles Greenberg, president of the Woman's Auxiliary to the Buchanan County Medical Society.

As a tribute to the retiring president, Dr. G. T. Bloomer, the toastmaster summarized the outstanding accomplishments of the Society during 1938. Among these he mentioned formation of the general staff executive and supervisory committee; the cancer clinic at the State Hospital with a great deal of good work being done; thorough investigation and endorsement of group hospitalization; housing and classifying the library of Dr. Jacob Geiger and making it available for use; endorsement of the Mental Hygiene Society which was organized during the year; working out a fee bill to guide in the care of indigent patients if and when some provision may be made for partial payment for medical services, and numerous changes and improvements in the by-laws. From the standpoint of Society accomplishments this year was declared one of the best in history.

Dr. Bloomer responded and introduced the officers for 1939.

Dr. F. X. Hartigan, the new president, gave a short talk following the installation.

Dr. James R. McVay, Kansas City, President-Elect of the State Association and guest speaker for the evening, spoke on "Impressions From the Special Meeting of the House of Delegates." He discussed the origin and development of socialized medicine and its present status in the United States. Dr. McVay has been intimately associated with the House of Delegates of the American Medical Association having served on various committees during the last several years and his remarks were enlightening and interesting.

O. EARL WHITSELL, M.D., Secretary.

Clinton County Medical Society

The Clinton County Medical Society met in Cameron on January 4 at 7:30 p. m.

Business of local interest was discussed and disposed of.

Drs. C. H. Risley and I. D. Kimes, Cameron, were appointed to the legislative committee.

The following officers were reelected for 1939: President, Dr. W. B. Spalding, Plattsburg; secretary, Dr. P. M. Steckman, Plattsburg.

Dr. W. B. Spalding, Plattsburg, read a paper on "Endocrinology" dwelling on hypothyroidism and hyperthyroidism, the methods of diagnosis and methods of treatment with glandular extracts, iodine and surgery. The paper was discussed by all present.

The next meeting will be held at Plattsburg on February 1 at 7:30 p. m.

P. M. STECKMAN, M.D., Secretary.

Grundy-Daviess County Medical Society

The Grundy-Daviess County Medical Society met December 20.

The following officers were elected: President, Dr. Charles H. Cullers, Trenton; vice president, Dr. O. F. Duffy, Trenton; secretary and treasurer, Dr. E. A. Duffy, Trenton; delegates, (Grundy County) Dr. E. J. Mairs, Trenton, alternate, Dr. O. R. Rooks, Trenton; (Daviess County) Dr. R. V. Thompson, Jamesport, alternate, Dr. E. E. Nixon, Gallatin; censors, Drs. Bertha E. Sheetz, Trenton (one year), Robert V. Thompson, Jamesport (two years), William A. Fuson, Trenton (three years).

E. A. DUFFY, M.D., Secretary.

SECOND COUNCILOR DISTRICT

H. B. GOODRICH, HANNIBAL, COUNCILOR

Chariton County Medical Society

The Chariton County Medical Society held its annual meeting on November 29.

The following officers were elected: President, Dr. William B. West, Mendon; vice president, Dr. F. L. Harms, Salisbury; secretary, Dr. G. W. Hawkins, Salisbury; delegate, Dr. John W. Hardy, Sumner; alternate, Dr. G. W. Hawkins, Salisbury.

Dr. P. C. Quistgard, Kansas City, spoke on "Intestinal and Abdominal Obstruction and Abdominal Disorders."

Dr. A. L. Stockwell, Kansas City, spoke on "Diagnosis of Urinary Problems."

G. W. HAWKINS, M.D., Secretary.

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society met at the library at Moberly on December 13.

Officers were elected as follows: President, Dr. M. P. Hunter, Moberly; vice president, Dr. J. P. Allen, Cairo; secretary-treasurer, Dr. M. E. Kaiser, Moberly; delegates (Randolph), Dr. F. L. McCormick, Moberly, alternate, Dr. C. C. Smith, Moberly; (Monroe), Dr. M. C. McMurphy, Paris, alternate, Dr. F. A. Barnett, Paris; censor for three years, Dr. P. C. Davis, Moberly.

Dr. Hollis Allen, St. Louis, spoke on "Types and Typing of Pneumonia."

Dr. John J. Hammond, St. Louis, spoke on "The Modern Treatment of Pneumonia."

The following guests and members were present: Drs. Hollis Allen and John J. Hammond, St. Louis; J. P. Allen, Cairo; R. A. Woods, Clark; F. L. Harms, Salisbury; P. V. Dreyer, Huntsville; M. C. McMurphy and F. A. Barnett, Paris; C. K. Dutton, F. L. McCormick, L. O. Nickell, M. E. Leusley, C. C. Smith, M. R. Noland, P. C. Davis, M. P. Hunter, R. D. Streeter, W. R. Langston, L. E. Huber and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR

Boone County Medical Society

The Boone County Medical Society met at the Harris Cafe, Columbia, at 6 p. m. on November 1. The meeting was called to order by the president, Dr. Dan G. Stine, Columbia.

Dr. Alvin C. Schopp, Columbia, was elected a member.

The secretary spoke briefly concerning the American Medical Association's study of the needs and supply of medical care and presented the appropriate blanks to be filled out by each physician. Dr. D. A. Robnett outlined the purposes and importance of the survey to organized medicine, urging that each member be as careful as possible in completing the blanks and returning them to the secretary for summary.

Dr. Fred McKinney, Columbia, professor of psychology in the University of Missouri, spoke on "The Unstable Child and Adolescence." His talk was scholarly and interesting and was well illustrated with case studies of students in the University. The paper was discussed by several members.

Meeting of December 6

The Society held its annual dinner meeting at the Tiger Hotel on December 6 at 6 p. m.

The following officers were elected: President, Dr. E. D. Baskett, Columbia; vice president, Dr. W. B. Brown, Columbia; secretary-treasurer, Dr. M. E. Cooper, Columbia; member of board of censors, Dr. A. R. McComas, Sturgeon; delegate, Dr. W. J. Stewart, Columbia; alternate, Dr. Dudley A. Robnett, Columbia; member auxiliary committee on public policy, Dr. C. M. Sneed, Columbia.

Dr. Dan G. Stine, retiring president, said a few words of appreciation for support received during his year in office.

Mr. Ray F. McCarthy, St. Louis, Executive Director of Group Hospital Service, Inc., outlined the plan in operation in St. Louis for prepayment of hospital bills, after which considerable discussion took place regarding the feasibility of establishing similar service in Boone County.

Among guests were several from surrounding county societies including Dr. W. A. Bloom, Fayette, Councilor of the District.

Meeting of January 3

The Society met in McAlester Hall at 7:45 p. m. The meeting was called to order by the new president, Dr. E. D. Baskett.

The president announced the following committees for 1939: Committee on lay projects, organization and education, Drs. C. M. Sneed, chairman, D. V. LeMone and A. R. McComas; programs and entertainment, Drs. James M. Baker, chairman, H. E. Allen and C. A. Leech; public health, Drs. N. R. Ziegler, chairman, H. McClure Young and W. J. Stewart.

The secretary reported for the committee on economics that the local survey of the needs and supply of medical care was progressing but the committee would like all those who had not sent in their blanks to do so at once so that the survey could be completed soon.

Dr. S. D. Smith moved that a committee be appointed to investigate Group Hospital Service, Inc., and to confer with the members of the Society to get their individual ideas.

Dr. D. A. Robnett suggested that a committee on cancer be appointed in anticipation of the requirements which may be imposed upon the Society by virtue of the State Cancer Hospital in the community. Dr. A. R. McComas, Sturgeon, was appointed chairman of a special committee on cancer.

It was decided to have a dinner preceding each meeting and that the cost of the dinner be borne by each member attending.

Drs. Dudley S. Conley and M. Pinson Neal were appointed as a committee to draw up resolutions of sympathy for the family of the late Dr. R. R. Robinson.

Dr. Maurice E. Cooper, Columbia, spoke on "Practical Aspects of Allergy," summarizing the essential points in the handling of an allergic problem by the general practitioner. The paper was discussed by Drs. A. W. Kampschmidt, C. R. Bruner, H. E. Allen, R. S. Battersby and D. A. Robnett.

M. E. COOPER, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

A. J. CAMPBELL, SEDALIA, COUNCILOR

Henry County Medical Society

The Henry County Medical Society met on December 29.

The following officers were elected: President, Dr. Ray S. Hollingsworth, Clinton; secretary, Dr. Edwin C. Peel, Clinton.

EDWIN C. PEEL, M.D., Secretary.

Lafayette County Medical Society

The Lafayette County Medical Society met in Higginsville at the home of Dr. W. A. Braecklein on the evening of December 27.

Dr. E. M. Moore, Jr., Higginsville, was selected to represent the Society and to act as adviser to the Lafayette County Tuberculosis Association for the ensuing year.

The following officers were elected: President, Dr. C. T. Ryland, Lexington; president-elect, Dr. G. W. Fredendall, Lexington; secretary, Dr. W. E. Koppenbrink, Higginsville; board of censors, Dr. E. M. Moore, Sr., Higginsville; delegate, Dr. C. T. Ryland, Lexington; alternate, Dr. E. M. Moore, Sr., Higginsville; reporter, Dr. E. S. Wallace, Lexington.

Dr. Braecklein brought out an old White Horse he had been keeping as a pet and specimens were titrated by those present.

Meeting of December 29

The annual banquet of the Society was held at the Victory Cafe in Lexington on December 29 with members of the Johnson County Medical Society and their wives as guests. Dr. and Mrs. L. S. James, Blackburn, were also guests.

Dr. J. S. Cope, Lexington, conducted a Professor Quiz inquisition and the high prize was won by Dr. W. E. Koppenbrink, Higginsville, who further demonstrated his versatility by acting as Santa Claus and presenting each with a gift of questionable worth.

E. S. WALLACE, M.D., Reporter.

SEVENTH COUNCILOR DISTRICT

E. P. HELLER, KANSAS CITY, COUNCILOR

The annual meeting of the Jackson County Medical Society was held December 20 in the Society's Auditorium at Municipal (General) Hospital. Some two hundred members and guests turned out for the occasion.

Annual reports of the secretary, treasurer, special committee reports, the budget forecast for the year 1939 and committee appointments for the ensuing year were presented.

The reports indicated a highly successful year for Jackson County Medical Society. For the first time in the history of the organization membership dues were paid 100 per cent.

Following the business meeting Santa Claus arrived and was greeted enthusiastically. Carefully chosen presents were distributed. All doubts concerning the singing ability of doctors were dispelled and a large quantity of refreshments, both liquid and solid, were dispatched with great efficiency.

This was one of the most successful annual meetings ever conducted by the organization. The publication staff of the *Weekly Bulletin* was host and, as always, the ladies of the Woman's Auxiliary contributed their efforts toward making the party a grand success.

Jackson County Medical Society

The following officers for 1939 were chosen to serve: President-elect, Dr. B. Landis Elliott; secretary, Dr. J. Harvey Jennett; treasurer, Dr. A. E. Eubank; councilors, Drs. Carl R. Ferris and Edward H. Hashinger; member board of censors, Dr. Herbert S. Valentine; delegates, Drs. Homer A. Beal, J. E. Castles, Ralph Emerson Duncan, H. L. Mantz, E. Lee Miller and R. R. Wilson; alternate delegates, Drs. G. T. Twyman, E. Kip Robinson, J. McLeod, R. R. Coffey, P. C. Quistgard and P. F. Hunt.

This election was perhaps the most efficiently conducted of any we have ever had. That 70 per cent of those eligible to vote did so, is a tribute to the mail ballot system and to the nominees.

Dr. Ferdinand C. Helwig took over the reins as president of the Society on January 1 and will remain in office until July 1, 1940, when, by a provision of the new by-laws, the fiscal year will begin.

COMMITTEE ON MEDICAL EDUCATION

The work of the Society's committee on medical education received recognition by the Council on Medical Education and Hospitals of the American Medical Association in its annual report, pages 14 and 15.

The committee has for some time been recognized through appointment of several of its members upon a committee of the executive staff of the Municipal Hospital No. 1 which has similar duties in graduate medical education. During this period the following reforms and advances were accomplished: (a) Meeting dates of hospital staffs of Greater Kansas City were arranged so as to confine night attendance at medical meetings by members of the local profession to one night each week. (During the coming year it is expected that schedules of one or two non-complying hospital staffs and special societies will recognize the plan and principle involved.) (b) Members of this committee, working in collaboration with members of the Municipal Hospital staff's committee on education, under date of March 21, 1938, made detailed recommendations as to the setting up of a cancer service as the first of a group of services to channelize patients of a particular type for purposes of better care and study, and the instruction of residents, the staff and visiting physicians. The executive staff of Municipal Hospital No. 1 gave final approval of the cancer service in August, 1938, and the plan was endorsed by the Director of Health. Steps were taken at once to institute the new setup, and it is now running smoothly with a staff made up of men interested in cancer representing each branch of medical science. (c) A comprehensive plan for the correlation of graduate and postgraduate medical instruction as well as the utilization of local facilities for educating lay groups has been projected and is now a part of the files of the Society, and will bear scrutiny by those who wish to encompass the whole teaching plant of Kansas City into a single unit at some future date. (d) Continuation study in medicine and allied sciences has been earnestly considered by the committee in all of its activities and it has held as an objective some such facilities as those provided for practicing physicians at the University of Minnesota. (e) By reason of the use to

which such a building could be put in the education of practicing physicians in this and adjacent territory, the committee on education has aided, wherever possible, the special building committee in its efforts to secure permanent housing for the Society's library and a growing museum on Hospital Hill. (f) Through cooperation with the program committee and the staff of Municipal Hospital No. 1, Tuesday has become established as Medical Day in Kansas City all year. A typical Tuesday's program at Municipal Hospital No. 1 Auditorium is that of November 22 which was as follows:

9:00 a. m. Clinic, Management of Pneumonia.

10:30 a. m. Clinical Pathological Conference, Pathology of Pneumonia.

11:30 a. m. Tumor Clinic, Tumors of the Respiratory Tract.

2:00 p. m. Practical Laboratory Studies in Pneumonia, Blood Cytology, Blood Culture, Blood Chemistry, Pneumococcus Typing, Complement Titer-Agglutinins, Agglutinins, Blood Transfusion and Serum Technic.

4:30 p. m. Anoxia in Pneumonia and Its Therapy.

8:00 p. m. Jackson County Medical Society, Present Status of the Treatment of Pneumonia.

(g) Every special society in Greater Kansas City has been invited to submit programs to the committee for use in one, two or three day symposia, and those societies which have not thus far complied have at least indicated their willingness to supply personnel for specific purposes as needed.

From the above outline of the activities of this committee it may be seen that Jackson County Medical Society has tried and has largely succeeded in presenting graduate work of all sorts to members of the local profession and physicians from nearby states.

The Committee on Medical Education for 1938 consisted of the following members: Drs. E. Lee Miller, E. H. Skinner, J. R. McVay, B. L. Elliott, R. E. Duncan, A. E. Eubank, C. K. Smith, and E. P. Heller, Chairman.

EIGHTH COUNCILOR DISTRICT

H. L. KERR, CRANE, COUNCILOR

Lawrence-Stone County Medical Society

The Lawrence-Stone County Medical Society met November 22 at the Aurora Hospital, Aurora.

Dr. W. S. Sewell, Springfield, spoke on "Prostatitis."

Dr. J. L. Johnston, Springfield, read a paper on "Allergy, With Special Reference to Bronchial Asthma."

Meeting of December 12

The following officers were elected: President, Dr. Don Silsby, Mt. Vernon; vice president, Dr. J. A. Stocker, Mt. Vernon; secretary-treasurer, Dr. L. M. Lyons, Pierce City.

The economics committee recommended and the Society approved the principle of a prepayment plan for hospitalization and the use of a specific plan by the two institutions in the county, the Pierce City Clinic and the Aurora Hospital.

L. M. LYONS, M.D., Secretary.

Newton County Medical Society

The Newton County Medical Society met December 30.

The following officers were elected: President, Dr. Charles E. Maness, Neosho; vice president, Dr. M. C. Bowman, Neosho; secretary-treasurer, Dr. J. A. Guthrie, Neosho; delegate, Dr. O. A. Sale, Neosho; alternate, Dr. Charles E. Maness, Neosho.

A possible program for the coming year was discussed.

The Basic Science Act was heartily approved. The Annual Registration Bill was discussed.

J. A. GUTHRIE, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society met December 12 at the Colonial Tavern, Cape Girardeau, Dr. D. H. Hope, president, presiding.

Members present were Drs. D. H. Hope, G. W. Walker, P. B. Nussbaum, R. A. Ritter, William Oehler, D. B. Elrod, J. H. Cochran, O. L. Seabaugh, W. E. Yount, J. W. Berry, Glenn Tygett, C. A. W. Zimmermann, Cape Girardeau; E. R. Schoen and D. G. Seibert, Jackson; Edward Crites, Sedgwickville, and W. W. Davault, Allenville.

A letter from the American Congress of Obstetrics and Gynecology asking the approval of the Society that a film, "The Birth of a Baby," be shown, was read. After discussion approval was given.

The following officers were elected: President, Dr. J. H. Cochran, Cape Girardeau; vice president, Dr. Frank W. Hall, Cape Girardeau; secretary, Dr. C. A. W. Zimmermann, Cape Girardeau; treasurer, Dr. M. H. Shelby, Cape Girardeau; censor, Dr. George W. Walker, Cape Girardeau; delegate, Dr. C. A. W. Zimmermann, Cape Girardeau, and alternate, Dr. P. B. Nussbaum, Cape Girardeau.

The secretary announced that during the last year there had been ten regular and three called meetings. There were five guest speakers.

It was decided to discontinue dinner meetings.

C. A. W. ZIMMERMANN, M.D., Secretary.

Dunklin County Medical Society

The Dunklin County Medical Society met in Kennett on January 5.

The following officers were elected: President, Dr. Paul Baldwin, Kennett; vice president, Dr. E. G. Cope, Hornersville; secretary-treasurer, Dr. T. J. Rigdon, Kennett; censor for three years, Dr. J. H. Keim, Kennett; censor for one year, Dr. W. H. Aufranc, Kennett.

Dr. T. J. Rigdon, Kennett, being more than 70 years of age and having been a member since the organization of the Society about the year 1900, was voted an honor member.

A round table discussion on "Pneumonia" was of much interest and was participated in by all present.

T. J. RIGDON, M.D., Secretary.

Perry County Medical Society

The Perry County Medical Society met at 8:30 p. m., October 12, in the office of Dr. O. A. Carron, Perryville, with the president, Dr. J. J. Bredall, Perryville, presiding.

Plans were completed for the lay lecture on pediatrics to be given in Perryville by Dr. O. F. Bradford. The lecture on obstetrics given by Dr. Paul F. Fletcher on October 11 was well attended. The lecture on pediatrics will be given on March 16, 1939, at 2 p. m. at Merciers Theatre.

The Society voted to cooperate with the Lions Club of Perryville which is planning on conducting free Schick tests of all children in Perryville between the ages of 1 and 6.

An interesting fifty-five minute motion film on "Traumatic Surgery of the Extremities" was presented.

Members present were Drs. J. J. Bredall, O. A. Carron, B. T. Koon, Perryville. Drs. W. H. Barks and W. H. Bailey, Perryville, were visitors.

O. A. CARRON, M.D., Secretary.

Ste. Genevieve County Medical Society

The Ste. Genevieve County Medical Society held its annual meeting on December 14 with Dr. John A. Wilkens, president, presiding. Attendance was good.

The following officers were elected: President, Dr. John A. Wilkens, St. Marys; vice president, Dr. George M. Rutledge, Ste. Genevieve; secretary-treasurer, Dr. Robert W. Lanning, Ste. Genevieve; delegate, Dr. A. E. Sexauer, Ste. Genevieve; alternate, Dr. Richard C. Lanning, Ste. Genevieve; board of censors, Drs. C. J. Clapsaddle, A. E. Sexauer and Richard C. Lanning, Ste. Genevieve.

The treasurer's report was read and approved.

R. W. LANNING, M.D., Secretary.

WOMAN'S AUXILIARY**WOMAN'S AUXILIARY TO THE AMERICAN
MEDICAL ASSOCIATION**

17th Annual Meeting, St. Louis

President, Mrs. C. C. Tomlinson, Omaha, Nebraska.

President-Elect, Mrs. Rolla K. Packard, Chicago.

**WOMAN'S AUXILIARY TO THE MISSOURI
STATE MEDICAL ASSOCIATION**

15th Annual Meeting, Excelsior Springs

President, Mrs. Herbert L. Mantz, Kansas City.

President-Elect, Mrs. Paul F. Cole, Springfield.

Letter From the President

All members of the State Auxiliary will join in a genuine expression of gratitude to the Missouri State Medical Association which, through its Council, on December 11, 1938, voted \$50 to the Woman's Auxiliary to the Missouri State Medical Association. Half is to go toward the expenses of the state convention and the other \$25 will be used to help defray expenses of the

new state-wide essay contest conducted this year under Mrs. Paul F. Cole, Springfield, president-elect, and her assistants. This central committee not only selected the topic, "Highway Hazards," and prepared the rules and source material but also mailed these to a thousand high schools in Missouri. It is most gratifying that many inquiries have been made from counties other than those in which the auxiliaries promoted interest. Better yet, some essays are already reaching Mrs. Cole. If successful in this method, we may be able to plan the contest with more forethought than was possible after the decision of the board in September. However, the State Medical Association has relieved our finances in time not only to prevent curtailment of our program, but also to encourage us for future expansion.

The New Year and its preceding holidays brought greetings and good wishes to your president from so many members that I felt that the season was brimming with happiness. Visits to twelve of the county organizations have been a continuous round of pleasure for me. Perfect winter driving weather and a healthy, tolerant family at home have made these trips possible.

Already convention plans are in the offing. Mrs. Y. D. Cravens, Excelsior Springs, president of the Clay County Auxiliary, will serve as chairman of arrangements for the state convention of the Woman's Auxiliary in Excelsior Springs, April 11 and 12, 1939. Until February, Mrs. Cravens is enjoying a vacation in California.

Mrs. Ily R. Beir, Atlantic City, national chairman of exhibits, has written of her pleasure in receiving the acceptance of Mrs. John O'Connell, St. Louis County Auxiliary, to serve as local exhibits chairman to assist Mrs. Beir at the time of the St. Louis convention in May. She also praises Mrs. Willard Bartlett, general chairman of arrangements for the national auxiliary, for her prompt cooperation and adds that we "must all be go-getters out here."

May we all continue to warrant this well deserved compliment. If ever an age called for intelligent thinking and efficient action, it is ours. Organized intelligence, through directed study, has been our year's purpose to the end that our guests in St. Louis in May will be forced to exclaim "How well informed are these Missouri women!"

MRS. HERBERT L. MANTZ, President.

Directory of County Auxiliaries

COUNTY	PRESIDENT	ADDRESS	SECRETARY	ADDRESS
Boone.....	Mrs. H. McClure Young.....	Columbia.....	Mrs. James M. Baker.....	Columbia
Buchanan.....	Mrs. Charles Greenberg.....	St. Joseph.....	Mrs. J. J. Byrne.....	St. Joseph
Callaway.....	Mrs. A. D. Ferguson.....	Fulton.....	Mrs. T. A. Hopkins.....	Fulton
Cape Girardeau.....	Mrs. A. M. Estes.....	Jackson.....	Mrs. D. I. L. Seabaugh.....	Jackson
Cass.....	Mrs. F. B. Ellis.....	Garden City.....	Mrs. George W. Griffith.....	Garden City
Clay.....	Mrs. Y. D. Craven.....	Excelsior Springs.....	Mrs. A. S. Weary.....	Excelsior Springs
Cole.....	Mrs. James A. Hill.....	Jefferson City.....	Miss Rachel Rambo.....	Jefferson City
Greene.....	Mrs. John W. Williams.....	Springfield.....	Mrs. Roland E. Elkins.....	Springfield
Grundy.....	Mrs. E. A. Duffy.....	Trenton		
Jackson.....	Mrs. B. Landis Elliott.....	Kansas City.....	Mrs. W. Merritt Ketcham.....	Kansas City
Jasper.....	Mrs. Burleigh E. DeTar.....	Joplin		
Johnson.....	Mrs. O. B. Hall.....	Warrensburg.....	Mrs. W. R. Patterson.....	Warrensburg
Lafayette.....	Mrs. E. M. Moore, Jr.....	Higginsville.....	Mrs. E. S. Wallace.....	Lexington
Linn.....	Mrs. M. L. Diekroeger.....	Marceline.....	Mrs. G. B. Putman.....	Marceline
Caldwell-Livingston.....	Mrs. H. M. Grace.....	Chillicothe		
Perry.....	Mrs. Jerome J. Bredall.....	Perryville.....	Mrs. B. T. Koon.....	Perryville
Saline.....	Mrs. J. R. Lawrence.....	Marshall.....	Mrs. H. T. Conway.....	Marshall
St. Louis City.....	Mrs. E. H. Johnson.....	St. Louis.....	Mrs. E. N. Snyder.....	St. Louis
St. Louis County.....	Mrs. F. J. Canepa.....	Clayton.....	Mrs. F. W. Teiber.....	St. Louis
Vernon-Cedar.....	Mrs. R. B. Wray.....	Nevada.....	Mrs. A. E. Miller.....	Nevada
26th District.....	Mrs. Cyrus Mallette.....	Crocker		
	Mrs. W. L. Allee.....	Eldon		
Members at Large.....	Mrs. Paul E. Coil.....	Mexico		
	Mrs. G. D. Walker.....	Eldon		
	Mrs. P. S. Tate.....	Farmington		

BOOK REVIEWS

MANAGEMENT OF THE SICK INFANT AND CHILD. By Langley Porter, B.S., M.D., M.R.C.S (Eng.), L.R.C.P. (Lond.), Dean, University of California Medical School and Professor of Medicine, etc., and William E. Carter, M.D., Director, University of California Hospital Out-Patient Department, etc. Fifth revised edition. St. Louis: The C. V. Mosby Company. 1938. Price \$10.00.

In this revision attempt has been made to remedy some of the errors and omissions of former editions and to incorporate the more important practical things which have been developed since the former editions.

It can be truthfully said that this work represents the highest ideals of modern pediatrics. Its whole purpose is practical, diagnosis and treatment forming the bulk of the reading matter. The popularity of this work is justified on the ground that pediatricians or general practitioners find it a safe guide at the bed side. As in former editions the section on methods of procedure describes the technical details of diagnosis and treatment in a style that is easily grasped. I know of no other work describing these procedures which are so important in practical pediatrics.

Probably one of the best chapters is the one on behavior. The average physician has great difficulty in making modern psychology practicable. I know of no epitome of mental hygiene which has so much of psychology and practice compressed in twenty-one pages. I am still doubtful that the aggressive psychological work in recent years has advanced far enough to bear much fruit. It is one thing to formulate rules; it is another to apply them. The practical application of modern psychology in the home offers great difficulties. Mental hygiene for children depends primarily on the establishment of good homes. Here the physician is confronted by insurmountable obstacles. As a rule his task consists in pointing out errors in the environment which may lead to unsatisfactory behavior. We are now standing only at the border of an immense domain; let us go slowly and carefully. We must not reject what tradition has taught for some attractive hypothesis.

I must emphasize the value of part one, where the chief clinical syndromes are made the basis of a comprehensive diagnosis. The practitioner in his daily work always proceeds from this standpoint. I believe this part of the work could be profitably enlarged. The work closes with some useful formulas and recipes. The prescriptions will be found useful for the medical student who has completed his hospital work and enters private practice.

J. Z.

A PRIMER FOR DIABETIC PATIENTS. By Russell M. Wilder, M.D., Ph.D., F.A.C.P., Professor and Chief of the Department of Medicine of The Mayo Foundation, University of Minnesota; Head of Section on General Metabolism, Division of Medicine, The Mayo Clinic. Sixth edition, reset. One hundred and ninety-one pages. Philadelphia and London: W. B. Saunders Company. 1937. Price \$1.75.

This primer is most complete and should be read by all diabetic patients. Here is a book that explains his disease to him in a language he can understand; also the importance of following his physician's instructions and the mishaps that may occur if they are not followed completely.

Wilder misses no detail which a patient should know and in reviewing his primer it was surprising to me how many little facts, which as a physician I might take for granted, should be emphasized to a diabetic patient.

This revised edition includes the use of protamine zinc insulin and is very enthusiastic about its results

and conveniences to the patient. Because of its prolonged action most patients he states can be injected successfully before breakfast. Reactions from overdosage of protamine zinc insulin are usually less severe and more easily prevented. More continuous insulin activity promises greater protection against diabetic acidosis, arteriosclerosis, retinitis and neuritis. The patients feel stronger and more fit with this new medication. In the Mayo Clinic every diabetic who needs insulin is given protamine zinc insulin.

Diabetic diets and charts are fully and clearly described. Moderate carbohydrate containing diets with sufficient protein and fat to fully provide nutrition are used. Weighed, measured and general diets are completely discussed.

This edition has most recent information and is a book in which your diabetic patient can find all facts clearly explained.

P. M.

INJECTION TREATMENT OF VARICOSE VEINS AND HEMORRHOIDS. By H. O. McPheeters, M.D., F.A.C.S., Formerly Director of the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital, etc., and James Kerr Anderson, M.D., F.A.C.S., Instructor in Surgery, University of Minnesota School of Medicine, etc. Illustrated with eighty-two half-tones and line engravings. Philadelphia: F. A. Davis Company, Publishers. 1938. \$4.50.

In 1935, the third revised and enlarged edition of "Varicose Veins" by H. O. McPheeters was published by F. A. Davis and Company. It was a clear concise treatise on the treatment of varicose veins, an excellent guide to any physician wishing to do that work and well worth the price for which it sold.

A new book on an old subject should present something new in methods of diagnosis or therapy in order to justify its publication, otherwise, its publication is merely a means to extract hard earned dollars from the pockets of gullible doctors.

This 1938 book is essentially a duplication of the 1935 book. The addition of six cuts and of two short unimportant chapters, which take up five pages and add nothing new or outstanding in diagnosis or treatment scarcely justifies the spending of \$4.50 for this new book if one has the 1935 edition. If not then this book is well worth several times its purchase price to any physician who treats varicose veins.

The sixty pages on injection treatment of hemorrhoids is well written, is interesting and contains valuable advice concerning the treatment of hemorrhoids by injection.

F. M. P.

ELECTROTHERAPY AND LIGHT THERAPY. By Richard Kovacs, M.D., Clinical Professor and Director of Physical Therapy, New York Polyclinic Medical School and Hospital, etc. Third edition, thoroughly revised. Illustrated with 307 engravings and color plate. Philadelphia: Lea & Febiger. 1938. Price \$7.50.

This is the third edition of Dr. Kovacs's book on the subject, "Electrotherapy and Light Therapy." There are 744 pages and the book is illustrated with 307 engravings and a colored plate. It is divided into four parts: (1) electrophysics, (2) general electrotherapy and electrodiagnosis, (3) light therapy, and (4) applied electrotherapy and light therapy.

In this book the author presents the physics and the physiological action of the galvanic, faradic, direct, alternating and static electric currents; he gives methods of using some for diagnosis and of applying all for therapeutic purposes. By word and picture, a lucid description of the diathermy generators is shown—here too he describes the physics and the physiological action of the short wave and conventional diathermy;

also, he gives due consideration to the vacuum tube and spark gap machines. He tells how to use these generators both medically and surgically.

An entire chapter is devoted to artificial fever therapy, one of the newest methods in treatment of diseases. He tells how high temperatures may be produced by applying heat to the external surface of the body with an electric blanket or luminous lighted cabinet or infra-red. He also tells how fevers are produced by energy acting within the body through the use of conventional diathermy or the vacuum tube or spark gap short wave generators or the inductotherm machine. The physiological effect, clinical use, contraindications to and general technic of electropexia, together with reactions and complications, are given.

In the chapter on electrosurgery the author states that some advantages of this method of surgery are: (1) lessening or eliminating bleeding, (2) facilitating the rapid and gentle handling of even the most delicate tissues, and (3) lessening of operative shock and pain after operation. The technic is given in desiccation, coagulation or cutting in using electricity in surgery.

In considering light therapy, Dr. Kovacs includes not only the visible spectrum but also that invisible energy, the ultraviolet and infra-red rays on either side of the solar spectrum. The source of all these rays, from the sun and from generators, is explained; the physiological action of these various rays is described and their therapeutic application given.

Part four is devoted to internal medical conditions, also gynecology, genito-urinary, proctology, dermatology and eye, ear, nose and throat conditions. The last two chapters are given to office and institutional practice.

Any physician who wishes to practice electrotherapy will find this a practical and valuable book. However, though electrotherapy is a valuable method of treating diseases and rapidly being accepted by the medical profession, one should sweat over the book awhile before attempting this method of therapy. Dr. Kovacs says, "No one can apply electrotherapy efficiently and safely unless he is fairly well grounded in the physics of electricity and of the various electro-medical currents and under competent instruction, has acquired practical experience in the therapeutic application of these currents."

Get this book from the Jackson County Library, investigate for yourself and see if you do not need it in your private library.

J. L. M.

CLINICAL ROENTGEN THERAPY. Edited by Ernst A. Pohle, M.D., Ph.D., F.A.C.R., Professor of Radiology, Chairman, Department of Radiology and Physical Therapy, in the University of Wisconsin, Madison, Wisconsin. Foreword by George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital and Clinical Professor of Roentgenology in Harvard Medical School, Boston, Mass. Illustrated with 199 engravings and a colored plate. Philadelphia: Lea & Febiger. 1938. Price \$10.00.

This remarkable book is one of fundamental importance in radiology and represents the first serious attempt to write a comprehensive textbook on roentgen therapy without including the many phases of diagnostic procedure.

The need of such a book written in the English language is obvious, due to the rapid advance of this type of therapy and also to the rapidly changing technic. The purpose of this volume is that of a practical one. Its arrangement is excellent and the illustrations are well chosen and well produced. The bibliography is adequate.

As one looks through the book, noting the imposing list of contributors, the space devoted to each of the

chapters and glances at the illustrations, one feels that here indeed is the solution to a long recognized need for a worth while technic on radiotherapy.

The method of presentation of the subject matter by the various authors is admirable. Pohle has edited these various chapters whenever it seemed to have been indicated. I feel that this book can be highly recommended to the radiologist as well as the general practitioner as an excellent text on radiotherapy.

I. H. L.

DISEASES OF THE THYROID, PARATHYROIDS AND THYMUS.

By Andre Crotti, M.D., F.A.C.S., LL.D., R.I.C.S., Formerly First Assistant of the Pathological Laboratory at the University of Lausanne, Switzerland; Surgical Assistant at Roux's Clinic, Lausanne, Switzerland, and at Kocher's Clinic, Berne, Switzerland, etc. Third edition, thoroughly revised and enlarged. With 262 illustrations and thirty-nine plates in color. Philadelphia: Lea & Febiger. 1938. Price \$20.00.

This volume of some 1100 pages is perhaps the most complete of all books on the thyroid, parathyroid and thymus.

The most interesting part of this third edition deals with the etiology of goiter. The part played by iodine and all other etiologic factors is adequately presented. The goiter fungus of Crotti is the most outstanding feature of this book. The author describes in detail his experiments and observations. His conclusion based on studies of cabbage, water and all of the various ramifications of the subject, lead us to believe that his work warrants serious consideration and cannot be dismissed, as he says, by a simple turn of the hand. It is to be regretted that books and monographs on Goiter fail almost without exception to mention Crotti's fungus.

Iodine is recommended in the accepted manner in the treatment of goiter and in the preoperative and post-operative handling of the patient, calling attention to its benefits and limitations, especially mentioning the Iodin-Basedow of Kocher.

The pathology and physiology of goiter are most complete, even calling attention to Eiselsberg's case of functioning metastatic thyroid carcinoma.

The operative technic is described minutely. He uses catgut in preference to silk and, I am pleased to note, believes in drainage or leaving the wound open when necessary. He rarely finds it advisable to resort to two-stage operations. Evidently he believes that the time consumed in doing the operation is of considerable importance to the patient.

This book will be enjoyed by all who read it. It will enlighten those who have not read the early epic making original contributions. Those who are Academic masters of the subject will like the way Crotti presents this voluminous material such as the Reverdin-Kocher controversy.

There are few omissions of consequence. More could be said about the recurrent laryngeal nerves. The statement is made that the nerve is found either behind, in front or between the branches of the artery. The work of Jacobson giving the percentages of anomalies is not mentioned. Also Doyen's arterial loop in circling the right nerve is omitted.

Thyroidectomy beginning by division of the isthmus is not described. This method is used exclusively in some Clinics (Hahn 1936). I should like to know what the author thinks of it. In 1904 I called attention to the advantages and limitations of this method of operating giving priority to A. Pearce Gould.

In hyperfunctioning thyroid adenoma no mention is made of the physiologic atrophy occurring in the uninvolved portion of the gland. In postoperative thyrotoxicosis, delirium and coma and acidosis, sodium chloride and glucose solutions are recommended. No mention is made of the intravenous and subcutaneous ad-

ministration of sodium citrate to combat the diminished alkalinity and retard the excessive autolysis that occurs in these cases (Kendall, Jacoby). J. G. S.

MATERIA MEDICA DRUG ADMINISTRATION and Prescription Writing. By Oscar W. Betha, M.D., Ph.G., Ph.M., F.A.C.S., F.A.C.P., Professor of Clinical Medicine, Tulane School of Medicine, etc. Fifth revised edition. Philadelphia: F. A. Davis Company, Publishers. 1938. Price \$5.00.

This book is divided into three parts, with a section of definitions and an appendix. Part I is a complete index of official and unofficial drugs with detailed descriptions, their therapeutic actions, uses and administration. Part II deals with prescription writing and stresses the importance of correctly written prescriptions for, in the author's words, "The prescription is often the only written evidence of the physician's ability." Included also are tables of incompatibles, abbreviations, weights and measures, and solubilities. In Part III there are illustrations of common errors in prescription writing and in each instance the corrected prescription is given. The appendix gives some exercises dealing with problems encountered daily in the practice of medicine.

This book, first printed in 1915, has been brought up to date to conform to the United States Pharmacopoeia XI and the National Formulary VI and is in its fifteenth printing. This reviewer feels that a book that has gone through fifteen printings and has stood the scrutiny of physicians and students for almost a quarter of a century deserves our stamp of approval, and he recommends it to the profession. A. M. G.

PEDIATRIC SURGERY. By Edward C. Brenner, A.B., M.D., F.A.C.S., Director of Surgery, Riker's Island Hospital; Associate Professor of Clinical Surgery, New York Postgraduate Medical School, Columbia University, etc. Illustrated with 293 engravings. Philadelphia: Lea & Febiger. 1938. Price \$10.00.

"The child's body," says Brenner, "is no place for heroic surgery" and proceeds to recommend the type of management and surgical methods which are particularly adapted to children. He shows where certain procedures, conducive to good results in adults, are not indicated in the case of the very young.

The book is divided into nine parts; namely, part one deals first with the clinical approach to the problems which the pediatric surgeon must face, then with wounds of the soft parts, burns and scalds, preoperative and postoperative care, anaesthesia and blood transfusion; part two considers the question of cysts and tumors that occur in children; part three is a scholarly discussion of the various diseases of the osseous system and the discussion of osteomyelitis is excellent; part four deals with the surgery of the head and included here is a splendid section on cleft lip and cleft palate; parts five, six and seven treat respectively the surgery of the neck, thorax and abdomen, and part eight is devoted to a consideration of urologic conditions found in children, while part nine concludes with neurologic surgery.

Certain sections of the book have been written by the following contributors: Lester Unger; H. S. Vaughan; Louis Davidson; C. G. Bandler; A. H. Milbert, and J. E. Scarff.

While a number of the most important operations are described in detail, this book is not a monograph on operative surgery. It considers the background of the disease, the diagnosis of the disease and the indications for operation as well as the operation itself. In other words Brenner has succeeded in creating a textbook of pediatric surgery of the first magnitude. B. F. A.

HEALTH EDUCATION OF THE PUBLIC. A Practical Manual of Technic. By W. W. Bauer, B.S., M.D., Director, Bureau of Health and Public Instruction, American Medical Association; Associate Editor of *Hygeia*, The Health Magazine, and Thomas G. Hull, Ph.D., Director, Scientific Exhibit, American Medical Association. Associate Professor of Bacteriology, University of Illinois College of Medicine. Illustrated. Philadelphia and London: W. B. Saunders Company. 1937.

This book is dedicated to the doctor, whose title really means teacher. The foreword points out that physicians should be ready to bear their full part in enforcing health laws, sustaining health institutions and in educating the public. They should be prepared to administer health regulations and counsel the public on matters pertaining to health, sanitation and prevention and should not leave this work to workers who gravitate into it from the laity and to whom it is merely a means of making a living.

The book is a manual or handbook. The first chapter deals with definitions and outlines objectives of health education and refutes many often heard objections. Material for health education is quite voluminous and may be obtained from books, magazines, government agencies, state and city health departments, medical schools, universities, health agencies, scientific organizations and the American Medical Association.

Succeeding chapters take up means available for health education of the public including radio, exhibits, meetings, pamphlets, newspapers, motion pictures, stereopticon slides, magazine articles, correspondence, books and miscellaneous devices. The author points out that these various educational means cannot function independently to their best advantage but must be welded together into a correlated program.

In answering the question "Can the results be measured?" the following are given as examples: Increased prenatal care of mothers, deliveries by physicians rather than midwives and increase in percentage of hospital births, well baby clinics, maternal breast feeding of infants, pasteurized milk, increased milk consumption, vaccination, diphtheria immunization, school examinations, health examinations, kindergarten examinations, correction of diseases due to dirt, vermin, skin infections, trachoma, tuberculosis control and treatment, reduction of acceptance by newspapers of quack advertising, circulation of authentic health literature, sanitation in regard to water supply and sewage disposal, increase in running water, malaria control, reduction of mortality and morbidity, lessening days lost from work or illnesses. S. C.

THE VITAMINS AND THEIR CLINICAL APPLICATIONS. A Brief Manual. By Prof. Dr. W. Stepp, Director of the I. medical clinic, University of Munich, Doz. Dr. Kuhnau, Director of the municipal institute for balneology and metabolism, Wiesbaden, and Dr. H. Schroeder, Associate at the I. medical clinic, University of Munich. Translated by Herman A. H. Bouman, M.D., Minneapolis, Minnesota. Milwaukee, Wisconsin: The Vitamin Products Co. 1938.

This enlightening and intensively practical manual on vitamins has recently been translated by H. A. H. Bouman, M.D., Minneapolis, Minnesota, and should be of interest to every physician who wants to understand the use of vitamins in his daily practice.

Practically no other branch of research has survived such tempestuous development as has vitaminology. The advantage of being able to work with pure substances is evident and the busy physician in general or hospital practice may now through this manual inform himself in vitaminology by means of its lucid practical presentations.

The manual takes up each of the known vitamins separately, giving its history, chemistry, determination, occurrence, manifestations, absorption, clinical application, physiology, preparation and dosage.

Included is a chart of the survey of vitamins known today and a chart showing contents of essential vitamins in various diets.

Valuable information is given in the chapters on terminology of the vitamins, vitamins and human nutrition and the daily vitamin requirements for man. Extremely helpful is the extensive bibliography given for each of the vitamins.

In short, it is a well written, easily understood, intensely practical reference book that should be in the library of every practicing physician.

EARLY MEDIEVAL MEDICINE WITH SPECIAL REFERENCE TO FRANCE AND CHARTRES. By Loren C. MacKinney, Professor of Medieval History, University of North Carolina. Vol. III of the Third Series of the Publications of the Institute of the History of Medicine. The Johns Hopkins University.

This is a small and readable book covering a much misunderstood period of medical history. The author is professor of medieval history at the University of North Carolina and is well qualified to write on this subject. The material in this book composes the third series of Hideyo Noguchi lectures given before the Institute of The History of Medicine of Johns Hopkins University.

In this book the emphasis is on medical men, medical training and the general attitude toward the physician rather than on the progress of the science of medicine. The author points out that the term "Dark Ages" applied to the 5th to the 11th centuries is a misnomer both as regards medicine and as regards civilization in general. Although intellectual life was slowed, there were fewer educated men and the intellectual leaders were not so brilliant; there was a continued intellectual tradition and a continued body of physicians throughout this period. In the first part of this period the physicians were laymen. The churchmen were opposed to what was called "human healing," and, in their writings, stressed "supernatural medicine" which encompassed healing by Christian saints and their relics, Christian-pagan charms and magical incantations. Later in this period most of the physicians were monks and members of the secular clergy. Then the churchmen began progressively to lay more stress on the human efforts at healing and less on divine intervention.

In medieval times it was considered a function of the church to provide medical care along with its other duties of spiritual guidance, provision for the poor and the traveler and education. The cathedrals were mainly held responsible for the medical care but this seems to have been rather haphazard and incidental to the other church activities. In medieval France there was nothing to correspond to the modern hospital. According to the Benedictine rule, each monastery was supposed to contain an isolated section for the sick which was presided over by one of the monks, but there was little provision for the sick who were not members of the monasteries.

In the later middle ages a smattering of medicine was a part of every educated man's training. Those who wished to know more would study under some physician. There were no medical schools in medieval France. The outstanding medical centers were the cathedral schools rather than the monasteries.

It is significant that, in the United States at least, while medical history has in the past been written by physicians who have taken up the study of its history, for the last twenty years professional historians have become increasingly interested in the medical aspects of history. This contribution from a detached group can result only in a more well rounded science of medical

history and the excursions of these independent and respected moulders of public opinion in medicine cannot help but result in a more intelligent and sympathetic understanding on the part of the nonmedical public of the difficulties and aspirations of the medical profession.

D. J. S.

THE COMPLEAT PEDIATRICIAN. Practical Diagnostic, Therapeutic and Preventive Pediatrics. Second, Completely Rewritten Edition. For the Use of Medical Students, Interns, General Practitioners and Pediatricians. By Wilburt C. Davison, M.A., D.Sc., M.D., Professor of Pediatrics, Duke University School of Medicine, and Pediatrician, Duke Hospital. Durham, N. C.; Printed by Seeman Printery for Duke University Press, 1938. Price \$3.75.

The author refers to this book as an up-to-date digest. Information is taken from 7500 recent pediatric articles and a separate pamphlet contains as many references to pediatric literature.

This book represents a great amount of time and effort on the part of the writer. It contains much valuable information. Many excellent ideas of the author are expressed but that which is good is buried in a maze of unimportant material.

Under differential diagnosis so many diseases are listed that this part is impracticable. For example, under pneumonia thirty-four diseases are listed. The author has attempted to fortify himself against criticism of this listing by advising one to concentrate on the more likely possibilities.

Under treatment, throughout the book, sulfanilamide is recommended for most bacterial diseases.

Vitamin therapy is stressed. Such expressions as the following occur throughout the book: "A high vitamin diet is beneficial to burns;" "vitamin deficiency may precipitate intestinal obstructions," and "vitamins A and D prevent colds."

Throughout the book the author is prone to recommend various proprietary preparations such as Camay soap for acne (Proctor & Gamble), Almay Acne Lotion (Schieffelin & Company), Neo-Synephryn (Frederick Stearns & Company), Butyn (Abbott Laboratories), Kaomagna (John Wyeth & Brother), Metaphen (Abbott Laboratories), and Covermark (Lydia O'Leary, Inc., 5551 Fifth Avenue, N. Y.).

Under infant feeding undue emphasis is placed on the routine use of whole lactic acid milk. It is our opinion that most pediatricians have tried this and found it to be impracticable and unnecessary.

Chapter 8 is a good laboratory manual reference book. With this exception, it is our opinion that the book has a limited value.

J. A.

THE ETIOLOGY OF TRACHOMA. By Louis A. Julianelle, Chairman of the Trachoma Commission, Washington University, St. Louis. New York, The Common-Fund. London, Humphrey Milford: Oxford University Press. 1938. Price \$3.25.

"The Etiology of Trachoma" by Louis A. Julianelle, is a monograph delightfully pleasing in style, comprehensive yet compact in its review of trachoma's history and legend, with an unbiased critical review of trachoma research. It is a simple and convincing presentation of the brief for the inclusion body theory and the relationship of trachoma, swimming, bath, conjunctivitis, "epitheliosis desquamativa" and inclusion blennorrhea which gives one the satisfaction of having read something built up logically with each premise scientifically proved and presented without prejudice.

It takes its place among the worthwhile books and cannot be too highly recommended to all medical men. Its value is not limited to workers in public health, bacteriology and ophthalmology.

V. L. J.

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THE THIRD STAGE OF LABOR

WITH SPECIAL REFERENCE TO POSTPARTUM HEMORRHAGE,
PLACENTA ACCRETA AND INVERSION OF
THE UTERUS

E. LEE DORSETT, M.D.
ST. LOUIS

While the subject of the management of the third stage of labor and the complications that occur in this stage may seem academic, it is not amiss again to call attention to it, to warn of the unexpected and disastrous results that may follow a seemingly normal delivery and to call attention to the mismanagement of this stage of labor. There is no argument about the mortality from postpartum hemorrhage being too high and, while we deplore the occurrence it is nevertheless true that a postpartum hemorrhage may be due to our own improper care or faulty judgment.

Recently great emphasis is being placed on care during pregnancy and we have established prenatal clinics throughout the country. Physicians are receiving lectures and instruction in the care of the patient during pregnancy but the mortality and morbidity rates remain about the same. The present day medical student and intern are taught by lectures and clinical demonstrations that nearly every delivery is an operative procedure and in some medical centers this has gone to extremes. We have only to study the statistics of some hospitals to note the high percentage of cesarean sections and the poor excuses that are given as indications for this operation.

It is the opinion of some physicians that as soon as the patient is delivered of her baby all the trouble is over. But how often he is mistaken for sometimes it happens that his troubles have just begun. Caution at this point is sometimes overlooked and the idea often prevails that the placenta should be removed as quickly as possible. I have seen one physician remove the placenta manually in nearly every one of his deliveries. In a series of fifty consecutive cases personally observed the women were returned to bed with the placenta still in the uterus

and in only one case was it necessary to use any pressure on the fundus to express the placenta.

How often have we seen the fundus grasped with both hands shortly after the delivery of the child, and with all the strength that could be exerted an attempt made to squeeze out the placenta when the uterus was not thoroughly contracted and the placenta not separated!

It is seldom if ever taken into consideration that when the fundus of the uterus is grasped in an attempt to expel the placenta the peritoneal covering of the uterus can be bruised severely and that a loop of intestine may slip down between the hand and the uterus and be badly injured. I have been present at two autopsies on patients who died from general peritonitis due to ruptured bowel, the injury being caused by traumatism from mismanagement of the third stage of labor. I fear that the Crede method of the expulsion of the placenta is adopted by some without thoroughly understanding when it should be used.

I think that those of us who had have much experience in obstetrics have had our share of postpartum hemorrhages. This calamity occurs when least expected and often when the physician is exhausted both physically and mentally from an all night vigil at the bedside of a young mother who has had a fairly long and hard labor. The onset of this hemorrhage is sudden and it requires a cool head and a steady hand to cope with this appalling situation.

In this day of "modern obstetrics" when lay magazines are teaching obstetrics to the morbid public women are going to their physicians and demanding the type of anesthesia they prefer and the manner in which they wish to be delivered. It is nothing unusual for a patient to request that she be delivered by cesarean operation and I regret to say that sometimes the physician is weak enough to agree to this demand.

I am firmly convinced after observing the different kinds of anesthetics and analgesics used in the last ten or fifteen years that some of them have been responsible for a portion of the complications that have arisen, not alone in the first and second stages of labor but have been the cause of postpartum hemorrhage. These complications have

occurred in the hands of every obstetrician and in the best conducted hospitals. In my own work I have been as guilty as anyone and have had my share of complications.

There is no question but that drugs or inhalation anesthetics, used to the extent that the patient is more or less completely anesthetized, will produce inertia of the uterus not only during the first two stages of labor but during the third stage as well. Many times an attempt is made to express the placenta from the uterus when the woman is still deeply under an anesthetic with the result that the uterus will not contract at the time the attempt is made, nor will it contract or stay contracted after the placenta has been expelled.

Far be it from me to withhold an anesthetic or analgesic from a woman in labor but I still say that when a woman demands that she have her baby without being at any time conscious that she is in labor the delivery is fraught with danger both to the mother and the child.

There are a number of conditions that are predisposing causes of abnormal bleeding following the third stage of labor and the physician should be on his guard against these complications. Especially should he be alert with those patients who have had unusually long labor with prolonged anesthesia, multiple pregnancies and hydramnios which cause an overdistention of the uterus, toxemias of pregnancy producing atony of the uterine muscles, placenta previa causing a thinning of the uterine wall and an erosion of the blood vessels in the wall of the uterus, operative deliveries, placenta accreta and inversion of the uterus.

Recently there have been placed on the market several new preparations of ergot and some of the pharmaceutical firms have gone so far as to suggest that their product should be used after the delivery of the child and before the placenta is expelled, the reason given being that it shortens the third stage of labor. We are now prepared to eliminate the first stage of labor by cesarean section, to do away with the second stage of labor by performing an internal podalic version and now the third stage is being done away with. What is left? Why all the hurry? Will this in any way benefit the mother and child? I fear not. I think the answer as to why we are not lowering our maternal and infant mortality, to say nothing of the morbidity, is found here.

It has been found by those who have used these new preparations of ergot to assist in the expulsion of the placenta that it is a rather dangerous procedure as in a number of cases it has produced a prolonged uterine contraction and has not loosened the placenta. One drug firm has been so bold as to state that they have a preparation that will contract the uterus and at the same time relax the cervix. It is felt that the routine use of large doses of a pituitary extract, especially in the vein, to assist in the expulsion of the placenta is a dangerous procedure and has in several cases produced violent shock in the patient.

While the greater proportion of postpartum hemorrhages are due to the failure of the uterus to contract from one cause or another or a combination of causes, we must not lose sight of the fact that a deep cervical laceration may be the cause of the abnormal amount of bleeding, and that the application of forceps to the fetal head when the cervix is not completely effaced may cause extensive lacerations and also that the application of forceps over the cervix may cause a complete separation of the cervix.

There is considerable difference between a retained placenta and an adherent placenta and it is sometimes rather difficult to differentiate one from the other. The opinion is gaining favor that an adherent placenta is nearly always a placenta accreta. By a placenta accreta we mean "the partial or complete absence of the decidua basalis, so that the placenta is attached directly to the myometrium." On section of the uterus it has been found in several of our cases that the villi have burrowed entirely through the uterine muscles and have reached the peritoneal coat of the uterus. This condition should be borne in mind in those cases in which the placenta does not separate within from thirty to forty minutes and gentle pressure and massage does not aid in the expulsion of the placenta. In rare instances it may be necessary to remove the placenta manually but upon entering the uterus it should be definitely ascertained if the placenta is retained or attached; if it is firmly attached, no attempt should be made to loosen it as in nearly every case a most severe hemorrhage will be the result.

Six cases of placenta accreta have come under my observation, four of them discovered at the time of fairly normal deliveries and the other two at the time cesarean section was performed. In the first case an attempt was made to remove the placenta manually, it not being realized at the time that we had to deal with a placenta accreta. The placenta was found to be firmly adherent to the wall of the uterus and the mistake was made of removing it piecemeal with the result that a terrific uterine hemorrhage followed and it was with difficulty that the bleeding was checked by packing the uterus tightly with iodoform gauze. Every time the packing was changed the patient began bleeding necessitating repeated transfusions. When the bleeding finally was checked the patient developed sepsis and the placenta sloughed out of the uterus in small pieces. The woman developed a pelvic abscess, was operated upon and finally recovered after a stormy convalescence.

In our second case the condition (placenta accreta) was fortunately recognized when the placenta failed to separate after an hour. Exploration of the uterine cavity determined the condition and the patient was transferred to the operating room where we performed a supravaginal hysterectomy. After the uterus was removed it was opened and the placenta was found to be attached in the upper zone and it was impossible to remove the placenta

without tearing it out in small pieces. The microscopic examination of the specimen confirmed our diagnosis.

The third case was of more than passing interest in that the woman had been delivered in her home and the placenta was never delivered. Her family physician did not attempt to remove the placenta where he was not equipped to handle any complications that might arise and sent the patient to the hospital. When she arrived at the hospital the uterus had contracted firmly around the placenta and the cervix had become so contracted that it was impossible to enter the uterine cavity. As this condition had been present six days the removal of the placenta through the vagina was not thought advisable. A supravaginal hysterectomy was done. Upon incision an interstitial myoma was found over which the placenta was so firmly attached that it could be removed only in small pieces. The laboratory report on specimen of this case was the same as in the second case, placenta accreta. This woman had more than the normal amount of bleeding following her delivery and had continued to bleed up until the time she was sent to the hospital.

Another case that came under my observation had had two unsuccessful attempts at manual removal of the placenta, followed each time by profuse uterine hemorrhage. She was packed, given a transfusion and a supravaginal hysterectomy was done but the patient died from a general peritonitis.

Two cases of placenta accreta were discovered by accident at the time of cesarean section and it was necessary to perform hysterectomy in both cases. These two cases illustrate a most valuable point, i. e., that when a woman becomes pregnant following a previous delivery by section it must be borne in mind that the placenta may implant itself in the old scar of the section and develop into a placenta accreta.

When a patient has any abnormal bleeding following delivery a thorough inspection of the cervix and vagina should be made; also the cervix should be palpated to ascertain if there is a complete or partial inversion of the uterus. A complete or incomplete inversion of the uterus may be either intravaginal or extravaginal. If inversion of the uterus occurs after the placenta has separated there will be a postpartum hemorrhage, but, as happened in one of our cases, there was a complete extravaginal inversion of the uterus without the placenta separating from its implantation on the uterine wall and without any abnormal bleeding. In one case the placenta was stripped from its attachment to the uterine wall and while the patient was still under the anesthetic and the cervix not being contracted, the inverted uterus was replaced and remained in place without the slightest discomfort to the woman and without any bleeding. This woman was delivered ten years later without complications.

The second case of inverted uterus was at first

a complete intravaginal inversion of the uterus and was converted into an incomplete inversion. The woman had gone through a normal labor and had been delivered by low forceps and episiotomy (being a primipara). A moderate Crede method was used to express the placenta but when the placenta came from the vagina it was followed by a copious uterine hemorrhage. Inspection and palpation of the cervix revealed an intravaginal inversion of the uterus. The inverted uterus was replaced by pushing it upward with the hand in the shape of a cone; the uterine cavity was then packed, at least we thought it was packed. Our patient continued to bleed and when an attempt was made to palpate the fundus of the uterus through the abdominal wall a large cup-like depression was noted where the fundus should have been. What had occurred was a complete inversion of the uterus had been converted into an incomplete inversion. As the patient showed marked signs of shock and hemorrhage no further attempt was made to replace the uterus through the vagina. The patient was given intravenous glucose and typed for a transfusion and taken to the operating room where the abdomen was opened. Our diagnosis of an incomplete inverted uterus was confirmed. The fundus of the uterus was grasped on each side at the insertion of the round ligaments and the depressed portion of the fundus was easily pulled into place. The abdomen was rapidly closed, the uterus repacked, the patient transfused and returned to bed in fairly good condition. She made an uneventful recovery and now two years after this accident is again pregnant.

The third case had been delivered in a town some hundred miles from St. Louis. From her history it was learned that she had had a difficult and long labor, it being her first pregnancy. She had been delivered by high forceps of a dead infant. The delivery was followed immediately by an uncontrollable postpartum hemorrhage and an extravaginal inversion of the uterus. No attempt had been made to replace the inverted uterus and the patient arrived in the hospital and died before anything could be done in the way of intravenous stimulation or a correction of the condition.

A fourth case, seen some ten years ago, had had a similar accident that occurred in a home delivery but the hemorrhage had been controlled although the extravaginal inversion of the uterus was still present. The control of the bleeding might be accounted for in this case by the fact that the cervix had recontracted so tightly around the lower segment of the inverted uterus that hemorrhage was stopped spontaneously. At any rate, this condition had been present for over three weeks when the patient was brought to the hospital. It was considered best, in this case, to perform a vaginal hysterectomy. This was done and the woman made an uneventful recovery.

While it is stated in most of the textbooks that pulling on the cord will cause the uterus to invert,

I feel that there are other factors present that contribute to this accident. It is well known that most midwives always use rather forcible traction on the cord in delivering the placenta and I have yet to see a case of inverted uterus except those herein described. It is felt that the direct cause of inversion of the uterus is the irregular and unequal contractions of the uterine muscles in different areas of the uterine musculature and to relaxations in other areas plus an attempt to expel the placenta when it has not separated from its attachment to the uterine wall by squeezing by the physician's hand when it is not "stony hard."

TREATMENT

To use an old adage, the time to stop a postpartum hemorrhage is "before it has started." A patient should never be delivered either in a home or hospital without a complete set of instruments to pack the uterus and the proper kind and amount of uterine packing at hand. I feel that often the uterus is packed too late to control bleeding; after a patient has lost a large amount of blood the uterus will not contract properly because its musculature is atonic due to the marked anemia present. The packing of the uterus is a simple procedure. The proper exposure is made with an anterior and posterior vaginal retractor and the cervix is grasped, not with a volsellum forceps but with a long sponge forceps, is pulled down as far as possible exposing the cervical canal, and the uterus is tightly packed with gauze (plain or iodoform). The vagina is also packed tightly being sure that pressure is made in the region of the uterine arteries to assist in hemostasis. Following injections, either in the muscle or intravenously, of from $\frac{1}{2}$ to 1 cc. of a pituitary extract, plus an injection of 1 cc. of one of the newer ergot preparations, the patient should receive from 500 to 1000 cc. of glucose intravenously, but a blood transfusion of from 500 to 750 cc. of citrated blood is preferable.

CONCLUSIONS

1. The third stage of labor requires time and patience.
2. Prolonged labors and anesthetics are factors that produce postpartum hemorrhage.
3. A too violent attempt to express the placenta when it has not separated and when the uterus is not "stony hard" may cause postpartum hemorrhage and inversion of the uterus.
4. The so-called "adherent placenta" may often be a placenta accreta.
5. The uterus should be packed just as soon as there appears to be an abnormal amount of bleeding from the uterus; but before packing, it first must be determined if the bleeding is coming from the uterine cavity or from a tear in the cervix or lower portion of the uterus, or if an incomplete or complete inversion of the uterus is present.

Missouri Building.

SOME COMPLICATIONS OF PREGNANCY AND LABOR IN GENERAL PRACTICE WITH TREATMENT

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The hemorrhagic complications of pregnancy and labor offer the most formidable of all the complications of the gestational period, and to combat these complications successfully it is necessary to treat them with precision and at many times with celerity. One should not only check bleeding but prevent later complications such as shock and infection whose severity is in direct relation to the amount of blood lost.

It is not absolutely necessary to have the complete surroundings of a well organized hospital to meet and care for this class of cases successfully. The physician doing obstetrical work remote from proper facilities can and should have certain although not necessarily elaborate, facilities at all times to meet any situation that may arise. A few things in addition to the usual obstetrical kit that should always be at hand to be used as needed in the hemorrhagic cases are means of properly preparing the patient for aseptic and antiseptic care; namely, a razor and some of the new antiseptics for local application after the patient has been shaved, two pairs of sterile gloves, one half dozen sterile towels, two jars of sterile pack (in home work two five yard packages of Johnson & Johnson or Bauer & Black gauze resterilized may be used for vaginal pack), a Graves and Sims speculum, a long dressing or sponge forceps and a pair of tenacula or sponge forceps for grasping the cervix if it is necessary to pack the uterus. For packing the uterus three or four rolls of sterile three inch gauze bandage are usually sufficient, although at times one half dozen may be required. They are, of course, to be tied together as the packing proceeds. A uterine packer is desirable but not necessary; a long curved sponge forcep will suffice especially in hemorrhage occurring during the third stage of labor at or near term. Two or three small sterile pans are convenient for holding the pack and instruments. These in addition to the usual obstetrical instruments will give one a fairly satisfactory layout to meet the ordinary condition aseptically. All this can be prepared in any doctor's office if he will use an inexpensive pressure cooker as a sterilizer. By going to a little trouble one can have distilled water on hand to be used in preparing sterile solutions for intravenous use if needed.

We physicians who undertake the care of maternity cases should remember that every case which we accept is potentially subject to any of the complications of pregnancy and labor. Unless we are equipped to give the patient a reasonable service, we are not giving our patients proper care, are not considerate of our profession nor true to ourselves as individuals. In discussing these compli-

cations I will try to present each in the order of probable occurrence during pregnancy and labor. I will not attempt to go into elaborate discussion of etiology or the finer points in diagnosis and treatment.

The ruptured tubal pregnancy is probably the earliest complication associated with bleeding. Occasionally its onset is rather dramatic with pain, shock and fainting and at times has a rapidly fatal termination. With this type of case there is little time to do anything. Most often the pain is less severe with slight atypical vaginal bleeding and dizziness followed by a pelvic discomfort which continues for a few days to be followed by another attack of pain and dizziness or perhaps fainting due to internal bleeding. This bleeding continues but is rarely so severe that the patient's life is in immediate danger. At this time, or soon after, pain may be referred to the shoulder girdle or rectum. These attacks may recur at times for several days before any demonstrable pelvic pathological condition can be determined but, sooner or later, a pelvic mass may be felt on careful bimanual examination. An extremely tender cervix is a valuable point in diagnosis of a ruptured tube. It must be differentiated from pus in a tube which gives an occasional rise of temperature and a similar blood picture. Of course, an early abortion must be considered from the outset. The majority of ruptured tubes in pregnancies occur during the first eight weeks while abortions requiring differential diagnosis occur as a rule during the last eight weeks of the first trimester.

Treatment of tubal pregnancy, in a word, is surgery under the most favorable circumstances that can be obtained and, of course, morphine for pain and nervous instability until a proper surgical environment can be obtained.

Abortion with its complications accounts for about 25 per cent of all maternal deaths in this country and an undetermined percentage of invalidism and sterility. Abortion occurs between the end of the fourth week of pregnancy and viability about the twenty-eighth week. The treatment varies to a certain extent depending on the period of gestation.

The symptoms of abortion are vaginal bleeding which may be alarming but is rarely fatal, pains in the lower abdomen and back and history of amenorrhea. With this history our first inquiries should be whether it is spontaneous or induced, threatened or inevitable, aseptic or septic. Having determined the type, the treatment must be instituted accordingly. In threatened abortion the rule should be first, hands off and rest in bed continuing for from seventy-two to ninety-six hours after all bleeding and pain have ceased. Progesterone and acetylsalicylic acid should be given to allay contractions and pain. No vaginal examination should be made unless abortion appears to be inevitable as indicated by hemorrhage. In the inevitable aseptic cases with hemorrhage curettage should be done

under the most rigid aseptic precautions, remembering always that the pregnant uterus is easily punctured with sound or curet. An ampule of pituitrin given at the beginning of any intra-uterine manipulation will lessen the danger of perforation.

In the induced aseptic cases without hemorrhage, the physician should wait and keep his hands off. If bleeding is severe, elevate the foot of the bed from ten to twelve inches and put an ice bag on the abdomen. Give one of the ergot preparations, pituitrin and morphine. If these fail, pack the vagina and wait. Do not invade the uterus if avoidable but, if it is necessary, use sponge forceps or a dull loop.

In the septic cases with hemorrhage give ergot and pituitrin and put an ice bag on the abdomen. If these measures fail to control the bleeding, use an aseptic vaginal pack. Remove any particles protruding from the cervix. Use a dull loop for intra-uterine exploration as a last resort. Keep the patient in bed, force fluids and food, support and treat symptomatically.

In the septic cases without bleeding do not invade the uterus with curet or sponge forceps and never irrigate the uterus. Here the treatment is rest, forced fluids, food and pituitrin (one ampule three times daily seems at times beneficial). Small repeated blood transfusions are of distinct value.

The common use of sulfanilamide for any and all types of infection is, from my point of view, to be condemned. Sulfanilamide should be used only with the utmost precaution after giving due consideration to the blood picture and in the proved presence of a streptococcal infection of the hemolytic type. I think that sulfanilamide is a dangerous and radical remedy unless given specifically for a hemolytic streptococcal infection and should be severely condemned when used as a universal panacea. We have no right to use measures equally or more dangerous than the disease which we are treating.

During the last trimester we encounter placenta previa and premature separation of the normally implanted placenta. Placenta previa is diagnosed by the sudden onset of painless vaginal bleeding seemingly without cause and usually in multiparous patients. The initial attack of bleeding is rarely fatal. The shock is in proportion to the visible blood loss. It is difficult at times to determine the type of placenta previa, whether it is lateral, marginal or central. Especially is this true with an undilated or only partially dilated cervix.

Vaginal examination is a hazardous undertaking unless done under the most rigid aseptic precautions. Be prepared before any examination to control hemorrhage by packing or section. Have the patient typed for transfusion and have donors immediately available.

It appears to me that section is the best method of procedure as soon as diagnosis of placenta previa is made. The treatment is supportive until proper surroundings for safe delivery can be obtained.

Occasionally one will see a multiparous patient with slight bleeding and dilated or dilatable cervix in whom rupture of the membranes will suffice. In an occasional case with dilated or dilatable cervix an immediate version will be necessary and preferable to a section. Braxton Hicks' version is not indicated if the fetus is alive but may be done if the fetus is dead and the cervix one half dilated. I would advise caution as it is not always possible to be sure of fetal death. It is well to keep in mind that any intra-uterine manipulation increases the blood loss and danger of infection. The severity of the infection is in direct proportion to the amount of blood lost. It is also well to keep in mind the possible danger of rupture of the lower segment of the uterus if version is attempted.

Premature separation of a normally implanted placenta occurs during the last trimester and is seen at times during labor. If the onset is during labor the only symptoms may be the expulsion of small clots during pains. The onset in most cases is sudden with constant pain, board-like rigidity of the uterus with or without visible hemorrhage. Shock, if present, is not in proportion to the visible blood loss. There is usually a history of toxemia. One especially should be concerned if there is a history of nephritis.

The treatment is immediate delivery by section in all cases except those in which the separation occurs late in the first stage of labor. In these cases simple rupture of the membranes may suffice.

If the fetus, late in the second stage of labor, is in distress as evidenced by the fetal heart rate, version may allow safe delivery of a live baby and save the mother. Premature separation of the placenta before onset of labor or early in the first stage, if neglected, means loss of the baby and probably a loss of the mother, or necessitates the removal of the uterus because of the infiltration of blood into the uterine wall with loss of contractility and subsequent postpartum hemorrhage. If recognized early, however, the maternal mortality should be slight.

More than one third of all deaths, occurring at or near term, occur during or soon after the third stage of labor. The causes are hemorrhage, embolism and shock.

We can do little to prevent embolism except perhaps the measures to lessen hemorrhage and shock will lessen the danger of embolism as embolism seems to occur most often in anemic patients whether they are obstetrical or surgical cases.

Postpartum hemorrhage is seen most often in the anemic patient as she is less able to withstand the stress of labor. The normal or a slightly increased blood loss which would have little or no effect on the average woman may be rapidly fatal to the anemic patient. Clotting and bleeding times should be taken in all cases with a history of hemorrhagic tendency. Long labors without rest and food act as a contributing factor in the loss of uterine tone and the loss of uterine tone is a cause

of hemorrhage. Uterine tumors and malignant conditions will not be discussed as a cause of hemorrhage. Attempts at delivery through the undilated cervix may result in lacerations that at times cause severe bleeding or even fatal hemorrhage. Improper and untimely efforts to deliver the placenta may result in portions of the placenta being left in the uterus, partial separation of the placenta with increased bleeding or inversion of the uterus. Prolonged anesthesia during delivery may cause hypotonia of the uterus as perhaps does the injudicious use of barbiturates during labor. This observation concerning the barbiturates is my own opinion.

The prenatal treatment for the prevention of postpartum hemorrhage in the anemic patient is iron and liver, proper food, rest and removal of all sources of infection.

Treatment during labor to prevent hypotonia consists of proper food, rest and forced fluids. No attempt at delivery should be made until the cervix is fully dilated. Anesthesia should be given for the shortest possible time to be consistent with good work. In order to check bleeding, diagnose the source if possible. If due to loss of tone the bleeding is continuous. Retained parts of placenta will cause bleeding in spurts with each contraction of the uterus. In either case some pituitary or ergot preparation or both is valuable. If this fails, explore the uterine cavity with the hand, of course observing strict, aseptic precautions. The mere introduction of the hand may stimulate the uterus to contract as well as possibly discover remnants of the placenta which should be removed. If bleeding continues, pack the uterus aseptically. A sterile vaginal pack should be on hand at all times. For bleeding not of intra-uterine origin, expose the vaginal vault and cervix. Any bleeding points that are found should be sutured. The patient may then be put to bed and given supportive treatment as indicated. All packs should be removed in twenty-four hours.

Proper aseptic technic with prevention of blood loss should be practiced constantly and with timely surgical procedures, when indicated, will lower the obstetrical mortality and morbidity.

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MUCH MUST YET BE LEARNED OF PICROTOXIN BEHAVIOR

In a report authorized by the Council on Pharmacy and Chemistry of the American Medical Association and published in *The Journal* of the Association for Feb. 4, it is stated that as matters stand, there seems to be no room for doubt that picrotoxin may enable a patient to survive from poisoning with derivatives of barbituric acid which make up many common sleep-producing remedies, although proof of this apparently has not yet been supplied. There still remains much to be learned, therefore, regarding the behavior of picrotoxin before it can be used with assurance of safety in the liberal doses that appear to be necessary. The drug itself is poisonous.

OFFICE MANAGEMENT OF AMBULATORY GYNECOLOGICAL PATIENTS

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The entire spirit of this discourse is that of "refresher" nature or, in other words, an attempt to remind ourselves of various principles in the management of ambulatory gynecological patients that may have slipped our minds in the course of day to day practice. I shall point out a few mistakes easily made because the patient is not acutely ill.

My continued association and closer acquaintanceship with the general practitioner only serve to build up a greater admiration for his ingenuity in the wide range of medicine in which he is called upon to act so extemporaneously.

It is a matter of rather common knowledge that not all women appearing in the gynecological clinic, or the office of the gynecologist, have disorders actually referable to the gynecological system. With reference to the reproductive system, it has been my observation that women entertain an entirely different idea in contrast to men. In a general way, the male patient, either through press of business or sense of false modesty, is prone to postpone medical care. The woman, on the other hand, is more likely to attribute any condition of ill health to her female organs. With this in mind it is easy to emphasize the necessity for careful history taking, even though it may consume considerable time. To paraphrase a renowned poet, "the reproductive system to a man is a thing apart, but to a woman it is practically her whole existence." That characteristic, coupled with her innate modesty, makes it necessary, if a valuable history is to be obtained, that it should be given in strict privacy with free reign for the patient to tell her own story. Women are rarely facetious as are men and seldom parry a perfectly obvious question with the answer, "That's what I came for you to find out."

In building the composite picture of the actual gynecological complaint one must keep in mind that the woman is still the feminine creature before puberty as well as after the menopause. Reproduction is a phenomenon grafted on, more or less, to the life cycle of the individual. It is also to be remembered that there is an intimate relationship between the human organism and the type, the time and the character of systemic disease. Any serious illness immediately prior to or during early puberty may produce inestimable harm. It is a frequent observation that many of the disorders of the reproductive system in adult life can be traced to adolescent factors as diseases such as pneumonia and scarlet fever, and by no means can mumps be neglected. Likewise, psychological influence or shock at this period may manifest itself by symptoms later in adult life. Particularly are

these latter influences to be suspected in cases of frigidity, unexplained hysteria and ideas of perversion. Therefore it is obvious that an adequate history taken in the proper manner requires no little effort as well as tact and understanding.

In the physical examination of the patient from its very nature a consumption of considerable time may be expected. Errors in observation and findings are not so much due to lack of skill or knowledge on the part of the examiner as they are due to haste on either his or his patient's part, inappropriate dressing rooms, uncomfortable or inadequate examining tables and lack of equipment or material for multiple diagnostic procedures. Low backache in a woman will tax the energy and ingenuity of any gynecologist for an hour's time, if it is the first visit, unless various procedures are relegated to associates or consultants. All this brings up another important point; namely, that women as a rule are much less favorably impressed by a whole coterie of assistants and associates than are men. On her part this may be due to inherent modesty or innate monogamous manner of thinking. Because of these conditions in the field of specialized practice the gynecologist can come nearer to approaching the status of the family physician than a practitioner in any of the other specialties.

In reference to practical points in examination, the inclusiveness of the gynecologist's examination should actually be little short of one conducted by a good internist. The necessity for such completeness can be exemplified in such conditions as vaginitis due to diabetes, menorrhagia due to myxedema, or backache due to fallen arches, and ad infinitum. Such an examination, both for accuracy and for the prevention of fatigue due to time involved, must be conducted not only with the patient properly draped but comfortably placed on an examining table.

One of the cardinal principles of an examination and one that is most difficult for students to remember is that a vaginal examination should never be made without first having carefully examined the abdomen.

Indeed, accomplished is he in his field who can with a high degree of accuracy depend upon his findings in a bimanual examination. It is so easy to forget that a full bladder or rectum can completely obscure the picture. It is easy to forget that the external apertures of the urinary, the reproductive and the alimentary tracts are supported in a common sling; and, for instance, pain on digital examination may well be due to traction or hemorrhoids or fissure in ano. Even the simple procedure of having the patient bear down for inspection is too infrequently practiced.

At times impressions may be quite surprising if the patient is examined on successive days. It is easy to see how the tenderness of a fecolith in the sigmoid in a threatened abortion could easily cause one to conclude that it was an ectopic pregnancy.

Occasionally a rectal examination is more in-

formative than a vaginal examination; and, in the case of a virgin, it approaches gross neglect to attempt to prescribe without having done a rectal examination. I wish to point out again that the errors of gynecological examination are due more to lack of application than to lack of skill or knowledge.

With respect to various diagnostic procedures, many of them complicated and often depending upon expensive equipment, entirely too much has been claimed. All put together these cannot produce greater efficiency than a pair of hands practiced in their field, supplemented with a sharp eye and an agile brain to couple up observations with symptomatology.

With the development of the field of endocrinology two conditions, which formerly were considered pathological, are now known to be quite within the range of normal physiology. It is now fairly accurately demonstrated that the ovulation time or actual fertile time of the female is approximately midway between periods. So prominent is this phenomenon in some individuals that they experience quite definite sensations. In a great number of women at this time the cervical mucous membrane undergoes a change sufficient to be observed by the naked eye, being characterized by turgescence of the endocervical tissue, increased moisture in the canal and the assumption of a peculiar reddish blue hue. This normal process simply represents estrus in the individual and is not an erosion of the cervix as it frequently is considered. In the nulliparous and unscarred cervix the reaction is generally more pronounced than in the multiparous woman. Obviously it is rather difficult to check such a physiological process. Too many times pathologically minded physicians cauterize these areas month after month until the process is stopped by a complete obliteration of that portion of the endocervix. Such extensive cauterizing may lead to distortion or obstruction of the cervical canal.

In a few individuals there is also associated with the process of ovulation a slight vaginal staining which has come to be known as the "mittelschmerz" being entirely a physiological process. It will not respond to curettage even though repeatedly performed and will not respond to organotherapy unless such quantity be administered as to upset the entire normal menstrual cycle. The point about these two conditions is that it emphasizes again the value of a careful accurate history. Both conditions may be identified fairly well by the course of events over the preceding few months.

In dealing with lacerations of the cervix it may become necessary to change some of our time honored ideas gained from textbooks which in being revised have carried copied ideas and recommendations that could well have been deleted. Many lacerations of the cervix are entirely symptomless. In all probability whether a laceration produces subsequent symptoms or not depends upon whether there is infection in the cervix at the time it was

lacerated, or at least immediately thereafter. Simple disfigurement of the cervix without symptoms is insufficient reason to rush the patient to the hospital for an emergency trachelorrhaphy. It is rather paradoxical to assume the reason for extensive repairs of all lacerations is that women who have borne children have cancer more often than those who have not. According to statistics presented at the American Medical Association in Atlantic City in 1937, Dr. Norman F. Miller actually denied that statement. Furthermore he questions the wisdom of extensive plastic treatment of the cervix where there is evidence of an old infection like hypertrophy, Nabothian cysts or hyperplasia when the actual tissue is not removed completely. The coagulation loop can be made to remove the entire cervix without hospital confinement. In cases, however, where other pathological conditions are to be corrected and the patient is referred to the hospital, probably the Sturmdorf procedure of enucleating the endocervix is a procedure of choice. It is not wise to remove cervical polyps in the office or clinic. In the first place they are seldom single, the visible one rarely being the lone one, and symptoms may continue if one is snipped off in the office. Furthermore, cervical polyps rarely occur without associated pelvic pathology. Even if no other procedure is indicated, a biopsy study of the endometrium gives valuable information, indicating some cause for the hyperplasia which has progressed through polypoid formation.

Uterine misplacements, in my opinion although many others believe to the contrary, are never an innocent condition. In Curtis' volumes on gynecology it is fairly conclusively proved that, although uterine displacement may cause or not cause concurrent symptoms, such conditions predispose to ovarian pathology, many times characterized by the formation of ovarian cysts in later life. Therefore, retrodisplacements are primarily cases for hospitalization but many reasons may exist for not hospitalizing them at the time of diagnosis of the condition. During the interval awaiting hospitalization, many symptoms may be removed by the discreet and judicious use of hard rubber pessaries. The flexible type devised by Dr. Palmer Findley is amenable to practically universal use. Soft rubber pessaries, tampons and vaginal packs are poor substitutes for therapy in these cases.

In outlining a regime for treatment of any gynecological condition often the physician is confronted with the patient's question, "Well, Doctor, will having a baby correct it?" It is my firm conviction that the answer should be "No." No chain is stronger than its weakest link and it is inconceivable that a process which is strictly physiological could single out a pathological condition and repair it. An explanation, hard to deny, is that pregnancy gives the patient a different philosophy of life which in turn may affect the general hygiene, ideals and mode of living, thereby improving her health but not directly acting as a therapeutic factor.

Sterility in the female seems to be increasing. An element for consideration, however, is the economic drawbacks encountered under present conditions. Due to the increasing efficiency of contraceptive measures, families are finding it increasingly difficult to choose times when pregnancy is entirely acceptable. In establishing the actual cause for sterility, however, relatively few procedures can be safely conducted in the office unless it is an office that is especially equipped and the operator is well experienced. Retroversion may be corrected by pessary management temporarily and patency of the tubes determined by the Rubin test but this test is a delicate procedure requiring skill and experience. Lipiodol injections for tubal disease or intra-uterine diagnosis is obviously a hospital procedure. Either of these tests, however, done under proper precautions and reservations is entirely harmless in most instances. Hormone treatment of sterility nearly always should be supplemented by some form of hypodermic medication. Seldom is oral administration of hormones adequate. It is helpful in cases of such disturbance to have a biopsy of the endometrium. Rather frequently some allusion is made to curettage in the office for an endometrial specimen. Suction cannula curettes have been devised for this purpose, but unless they are manipulated by a man experienced in the procedure and in an office equipped for unusual situations, their use is to be condemned as an office procedure. A point to be emphasized here is that in hypodermic administration of hormones, the physician may find himself in an embarrassing position if he has not first had the patency of the tubes determined. Only recently it was my experience to encounter an individual who estimated that she had spent nearly \$200 for ampule medication when, at once on Rubin test, it was found she did not have patent tubes. When hypodermic medication is administered I am sure few who have tried the upper portion of the gluteal muscle will deny its advantages over any other site of the body. Usually these courses of medication are rather prolonged as well as expensive and it is necessary for full benefits to be derived that the patient be spared unnecessary pain after each injection. The upper portion of the gluteal muscle is most adaptable to this type of medication.

The Schiller test, which depends upon color differentiation induced by the application of iodine to the cervix, is dependable in few hands for diagnosis of malignancy. The colposcope probably will never assume a position of extensive use. It is expensive to own, its technic is difficult and conclusions are vague despite the fact that it is used on unstained tissue. Even in the hands of the most expert the results from its use are checked by a biopsy. When indicated, after all, there is yet no test that will replace biopsies and with relatively little trouble or expense any office can be equipped for this purpose. All that is needed is an adequate speculum for exposing the cervix and a tissue punch

that can be used practically painlessly. Too strong a plea cannot be made for increasing the use of the tissue punch because of the small amount of trauma caused by it. Tissue may be obtained from multiple areas with only slight discomfort to the patient and usually with little bleeding. The bleeding is seldom of any import if the site of the punch is touched with a light cautery or if some dusting powder is applied to the points of removal.

The Friedman or the commonly known rabbit test for pregnancy has come to be recognized as one of the most dependable tests in all medicine when proper precautions are observed. In the last four years I have observed no erroneous "positives." Probably less than 1 per cent of "negatives" have proved erroneous in the end. In my experience death of the rabbit upon injection of the urine has always meant "positive" for pregnancy. The use, however, of the Friedman test in ectopic pregnancy is to be questioned because the very nature of the mechanism of the test makes it subject to much variation of dependability in this condition.

Sedimentation tests readily lend themselves to office procedures and the paper following this, by Dr. Calkins, no doubt will evaluate their application and desirability of use for the general practitioner.

In the discussion of gynecological treatment as an office procedure it becomes more apparent that time spent on making an accurate and complete diagnosis is necessary. Within the last two years Drs. George Thiele and F. I. Wilson have emphasized the importance of pyrifomis spasm in gynecological complaints. Many times a physician upon inspecting the cervix, which may not coincide in appearance with his particular idea of normal, will attribute any one of a myriad of complaints to this source. Gynecological conditions have a great tendency to occur in numbers or groups. The completeness of the diagnosis is most essential for the desired results in therapy.

Let it be emphasized once again in summarizing diagnoses that a careful history must be taken; that a patient should be properly draped; that she should be placed comfortably on an adequate examining table; that the abdomen should always be examined before doing a vaginal examination; that a digital examination of the vagina should never be done unless the rectum and bladder are empty and, in case of doubt, can be supplemented with a rectal examination. For inspection the most commonly used speculum is the ordinary Graves bivalve speculum and it is most desirable to have the office equipped with various sizes. A weak alkaline solution usually removes mucus and debris from the vaginal vault and cervix. It is nice to apply it with compressed air apparatus but no more effective than by dipping a swab into a solution and wiping off the surface of the area to be examined. A big advantage however is to be derived from drying the surface either with compressed air or with an ordi-

nary hair dryer before inspection is made. Any suspicious lesion should have a biopsy. Any suspicious infection should have a smear. Pregnancy tests are inexpensive and not inconvenient. The importance of their application in malpractice suits is assuming enormous proportions. A long series

of organotherapy should not be started until first a definite cause is found.

In younger women one must be ever mindful of pregnant conditions; and in the older woman one must be mindful of cancer.

201 Plaza Theatre Building.

SYMPOSIUM ON MATERNAL WELFARE— COMPLICATIONS OF PREGNANCY

PYELITIS OF PREGNANCY

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ST. LOUIS

Pyelitis occurs in from 2 per cent (Traut) to 10 per cent (Hinman) of all pregnant women.

Infection is invited by the urinary stasis in the upper ureter and kidney pelvis which seems to be physiological in all pregnant women. That this stasis is caused by pressure of the gravid uterus on the ureter is not the whole cause since Kretschmer and Heaney have shown that dilatation of the upper ureter and kidney pelvis with or without infection exists from the sixth week to the ninth month.

All uninfected cases become normal within three months. The cystoscope will enable the operator to observe certain changes in the trigone in the early months of pregnancy such as congestive appearance, widening, great lengthening and elevation; but more important changes take place in the lower third of the ureter.

In fourteen specimens obtained at autopsy from uninfected pregnant women Hofbauer observed hypertrophy of all the structures comprising the lower third of the ureteral wall together with a thickening of its sheath and enlargement of its blood vessels.

Endocrine changes take place as was demonstrated by Hisaw in the finding of pregnancy hormones in the blood and in the urine of pregnant animals. Pommerenke demonstrated the same substance in pregnant women in the early months of gestation. This substance was shown by Wilson and Abramson to relax the symphysis pubis in pregnant women and is called "relaxin." Crabtree points out that the atony of the circular fibers of smooth muscle surrounding the calices, pelvis and upper ureter takes place in the very early months of pregnancy at a time when there is the highest concentration of pregnancy hormones in the blood and urine.

While the atony of the upper portion and the hypertrophy of the lower segment of the ureter in the first two or three months of pregnancy is an established fact, it is still not clear why these two extremes of changes take place.

It has been pointed out that the right ureter

passes over the large vessels at a right angle in the region of the pelvic brim and is usually more dilated and more frequently infected than the left, which is somewhat cushioned by the sigmoid and passes obliquely over the large vessels at the pelvic brim.

It must be borne in mind that many women have congenital malformations and acquired pathological changes in the kidney and ureter before pregnancy. It is not always clear how the infection reaches the kidney nor whence it comes. That it is borne by the blood to the kidney in a large percentage of cases is generally accepted by urologists. The fact that the colon bacillus is the offender in 80 or 90 per cent of the cases has led some to believe that the lymphatics might carry the organism from the nearby colon to the kidney but the experiments of MacKenzie and others of injecting bacteria and dyes into the bladder, bladder wall and other pelvic organs, show that these substances are carried to the retroperitoneal lymph channels accompanying the large blood vessels where they empty into the thoracic duct and thence to the circulation and at no place do they flow toward the ureter or the kidney.

However it is probable that the frequently observed residual urine in the bladder of the pregnant woman together with the changes in the shape and structure of the trigone are sufficient to cause regurgitation from the bladder to the kidney pelvis as one source of the pyelitis. Pus and bacteria in the catheterized urine are not sufficient evidence for a diagnosis of pyelitis. Hundley has shown positive cultures from bladders of normal pregnant women in 38 per cent of cases and from the kidney pelvis in only 8 per cent of cases.

Pyelitis or pyelonephritis of pregnancy usually starts with high fever, often with chills, increased pulse rate, nausea, pain and tenderness in the costovertebral angle. Abdominal distention follows shortly in the more severe cases and may cloud the picture. The only means of making an absolutely positive diagnosis together with the unilateral or bilateral nature of the infection is by

cystoscopic methods. This need not be done routinely if the patient is not toxic until other measures have been tried for a few days. These other measures are bed rest and frequent change of position, turning from one side to the other, and elevation of the hips above the shoulders. The old plan of alkalization of the urine, using potassium citrate or citrocarbonate rather than soda bicarbonate, is sometimes successful. Hexamethylene has not been of much value in our hands and may be definitely irritating to diseased kidneys.

If the patient is not toxic ammonium mandelate in doses of from 45 to 60 grains daily, with ammonium chloride if necessary to produce an acidity of at least P_{H} 5.6, may be most gratifying in its results. Sulfanilamide in doses of 60 grains daily at first, then reduced to 45 grains, has given excellent results in the hands of several writers and no ill effects have been noted on the child; but the patient must be watched carefully for toxic symptoms of nausea, headache, dizziness and cyanosis during its administration. It gives best results in an alkaline medium.

The intramuscular injection of 5 cc. of 5 per cent neoprontosil every six hours may give excellent results without the toxic effects of sulfanilamide administered by mouth. One should bear in mind however that the pyelonephritic kidney of pregnancy is distended with infected urine and cannot be expected to eliminate bacteriostatic drugs in sufficient quantity to sterilize its contents. For this reason to catheterize the ureters and drain and lavage the kidney pelves is not only good practice but if carefully done is a safe procedure. The writer has done this hundreds of times in pyelitis of pregnancy and in some instances has retained small catheters over long periods with frequent changes without producing abortion or premature

labor. In one instance it was necessary to retain catheters in both kidney pelves almost constantly from the sixth to the ninth month when the woman was delivered of live twins. A check-up of this woman's kidneys several years later showed them to be normal.

A rising nonprotein nitrogen, increasing toxicity or continued high temperature for four or five days should be a definite indication for cystoscopy. Lavage of the kidney pelvis with from .5 to 1 per cent silver nitrate using not larger than a No. 5 or 6 catheter will often reward the operator with immediate improvement in the patient.

The inexperienced operator should not practice cystoscopy on this type of patient for gentleness and celerity are both necessary to avoid complications.

General hygienic measures are of prime importance. One of these is copious water intake except for limited periods when mandelic acid or sulfanilamide are being administered in nontoxic cases. Adequate bowel elimination is essential at all times but must be accomplished without drastic cathartics. Remember that the symptoms of pyelitis of pregnancy usually subside under proper treatment but the infection usually remains until after delivery and should be carefully watched during the postpartum period.

Many so-called cases of pyelitis of pregnancy are merely exacerbations of uncured chronic pyelonephritis from a former pregnancy. Much can be done in the way of prophylaxis in the prenatal period by clearing up chronic pyelonephritis with strictured or poorly draining ureters of congenital origin or resulting from former pregnancies. These conditions occur with surprising frequency and should have as much attention as does the much thought of intestinal tract elimination.

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VOMITING OF PREGNANCY

AN OUTLINE OF RATIONAL THERAPY

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Unfortunately the cause of vomiting of pregnancy remains unknown. Since specific preventive therapy therefore is lacking, one is limited of necessity largely to treating the effects of the vomiting. From the standpoint of practical management all cases of vomiting of pregnancy can be divided into three groups: mild, severe and intractable. Such a classification is self explanatory. More than ten years ago Dr. Wm. J. Dieckmann introduced a method of treating vomiting of pregnancy in the wards of the St. Louis Maternity Hospital that has been followed with few changes to the present time. The success

that has attended this treatment in these years suggests that its more widespread use would prove of great benefit in this annoying and too frequently serious complication of pregnancy. A suggested outline of management for each of the three groups follows.

MILD VOMITING OF PREGNANCY

These patients remain ambulatory and their nutrition is not seriously interfered with. Patients with mild vomiting should be given prompt and consistent attention, not because they are critically ill but to prevent them from becoming so. Sedation, elimination and diet should receive special emphasis. Rest usually can be insured by giving

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from 0.03 gm. to 0.09 gm. phenobarbital from once to three times daily. A daily bowel movement should be effected even if a mild cathartic or an enema is necessary. The usual three meal dietary should be replaced by the following:

SUGGESTED MENUS FOR THREE DAYS			
Hours	First Day	Second Day	Third Day
6 a. m.	Soda crackers	Dry toast	Graham crackers
8 a. m.	Grapefruit juice Milk	Orange juice Tea, lemon	Prune juice Coffee, sugar, milk, 1 oz.
10 a. m.	Cereal, milk, 1 oz., sugar Toast, jam or jelly	Toast, no but- ter, honey (Stewed) prunes, no juice	Cottage cheese Graham muf- fins, jelly
12 noon	Pineapple juice	Lemonade	Pineapple juice
2 p. m.	Roast veal, lean Baked potato Sliced tomato	Baked potato Spinach Fruit salad, no dressing	Dried beef Baked sweet potato Asparagus tips
4 p. m.	Orange juice	Grape juice	Fruit juice sherbet
6 p. m.	Custard Cookies	Graham crackers Jelly	Taploca, cream Cookies
8 p. m.	Prune juice	Pear juice	Orange juice
10 p. m.	Toast, chicken, tomato, let- tuce	Toast, cottage cheese, lettuce	Toast, chicken, tomato, let- tuce
12 m.	Mixed fruit juice	Grapefruit juice	Fruit juice

Failure to improve with the previous suggestions and progression of the vomiting place the patient in the second clinical group and treatment should then be altered accordingly.

SEVERE VOMITING OF PREGNANCY

Patients in this group become bedridden and their nutrition is seriously interfered with. Patients with severe vomiting should be treated intensively with special emphasis on immediate replacement of body fluids, salts, vitamins and nutritional reserve in order that tissue resistance may be kept at as high a level as is possible. If at all practicable these patients should be in the hospital under the following regime.

First Period: Gastro-Intestinal Rest.—This period should last from forty-eight to seventy-two hours with rest in bed, temperature, pulse and respiration taken every four hours, daily enema, weight taken three times a week, nothing by mouth except cracked ice. Urinalysis should be done every twenty-four hours and careful neurological and eyeground examinations should be made. Phenobarbital sodium, 0.18 gm. "H," should be given every six hours day and night until the patient sleeps the major portion of the twenty-four hours and then every eight hours (usually requires forty-eight hours). Sodium bromide crystals, 5 gm. in 100 cc. starch water, should be used as rectal tap on first night and as circumstances may require.

Intravenous injections of 500 cc. of 20 per cent glucose solution should be given two or three times in twenty-four hours over a period of from sixty to ninety minutes, preferably ninety minutes; i. e., at 9 a. m., 3 p. m. and 9 p. m. Obtain blood specimen for chemistry once daily at time of venipuncture for glucose. Give 2000 cc. Ringer's solution subpectorally one or two times daily, giving slowly and using 18 G. needles two inches long, at 12 noon and 6 p. m. Give transfusion if hemoglobin drops to 70 per cent or less. Give parenteral vitamins, crystalline C, crystalline B₁, or nicotinic acid (pyridine carboxylic acid) as directed for specific product used.

Second Period: Nasal Tube Feeding.—This period should last from forty-eight to seventy-two hours. Insert nasal tube at 7 a. m. It may be removed at 11 p. m. One hour after insertion inject 50 cc. of the high vitamin formula and increase by 50 cc. amounts every hour up to maximum of 200 cc. If vomiting occurs decrease the amount to the last preceding feeding. Discontinue phenobarbital sodium and give phenobarbital by mouth, from 0.048 to 0.096 gm. every four hours. Glucose and Ringer's solutions should be continued to maintain fluid intake of 4000 cc. every twenty-four hours. Dilute hydrochloric acid, 2 cc., should be given three times daily if indicated through the tube (achlorhydria).

The high vitamin formula is composed of skimmed milk, 1500 cc.; vitavose, 100 gm.; haliver oil (250 D), 30 to 50 M.; orange juice, 200 cc., and medicinal yeast, 10 gm. If retained the caloric value of the formula may be increased by using whole milk in place of skimmed milk and adding 200 cc. cream and from three to six raw eggs.

Neurological and eyeground examinations should be repeated.

Third Period: Frequent Small Oral Feedings.—This period should last from two to four days. The menu should be identical with that suggested for mild vomiting of pregnancy. Solid food should be given every four hours alternating with liquid every four hours, as solid food at 6, 10, 2, 6, 10 o'clock and liquid at 8, 12, 4, 8, 12 o'clock.

Continue hydrochloric acid and phenobarbital as indicated. Patient may be up in chair. Discontinue enemas and use mild cathartic as milk of magnesia, cascara or phenolphthalein. Supplementary glucose and Ringer's solution are to be given as indicated. Fluid intake should be kept up to 3500 cc. per twenty-four hours. Discharge patient from hospital.

Fourth Period: Gradual Return to Normal Diet Habit.—Give a dry diet, i. e., regular diet without liquids and low fat with midnight and 6 a. m. feedings. Continue hydrochloric acid and phenobarbital as indicated. Continue dry diet until there is no nausea for several days then resume normal diet habit.

A patient who fails to improve or who actually becomes worse under the regime for severe vomit-

ing automatically places herself in the third clinical group as an intractable vomiter. Intractable vomiting of pregnancy, as demonstrated by the appearance and progression of pathological neurological signs or retinal hemorrhage, should be treated by prompt therapeutic abortion and given in addition the same intensive supportive treatment accorded the severe vomiter as outlined. Repeated, careful neurological and eyeground examinations are of great importance in the second and third clinical groups as the appearance and progression of pathological nerve changes or retinal hemorrhage are the most valuable criteria of the time for abortion. Persistence in a policy of conservatism in the face of known nerve damage forces a hazard

on the patient that is extremely difficult of justification.

Sepsis and shock are important factors in the actual procedure of interrupting pregnancy for intractable vomiting. A valuable prophylactic aid in these cases is the vaginal instillation of 8 cc. of recently prepared 1 per cent neutral acriflavine in glycerin four times daily for one or two days prior to manipulation from below. The actual abortion is preferably accomplished by dilatation and gentle, blunt curettage in one sitting. Full supportive treatment should be continued in conjunction with the interruption of the pregnancy, transfusion being especially important.

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TUBERCULOSIS IN PREGNANCY

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The presence of pulmonary tuberculosis as a complicating factor in pregnancy is not an infrequent occurrence. This is not surprising when we realize that the incidence of tuberculosis in women is most common during the child-bearing period. Unfortunately in the past the therapeutic measure, namely, abortion, employed in pregnancy complicated by tuberculosis was based upon empirical knowledge and not upon the information that is now available; information which has been gained through the application of the recent advances made in handling pulmonary tuberculosis.

The question of whether pregnancy has any effect, harmful or otherwise, on a woman with clinically active tuberculosis has been a moot one for the last few decades with some authorities maintaining a favorable and others an unfavorable viewpoint. These contradictory opinions result from the use of the term "pregnancy" to embrace the three stages, viz., gestation, parturition and puerperium; and also because no consideration is given to the type of tuberculosis involved.

There are few satisfactory statistics on this problem in current literature. This is due to the absence of suitable controls in reports and because so-called statistics do not take into consideration the type of pulmonary tuberculosis. Until recently the classification of this disease was quantitative, that is, it was based solely upon the extent of the pathological involvement.

In a recent article Ornstein and Kovnat¹ show that such a classification is entirely inadequate, to say the least. They suggest a classification based upon the character or quality of the lesion present. Briefly, this classification divides lesions into two groups; namely, the exudative and the productive, the former being much more benign than the latter.

In regrouping their cases under these headings and comparing them with nonpregnant cases of

tuberculosis, they found that the end results did not differ materially in either group. Marshall² and Barnes and Barnes³ had findings which were similar when based upon the newer classification. Their findings showed conclusively that an unfavorable prognosis did not depend on pregnancy but entirely on the character of the pulmonary lesion.

Moreover, Forssner⁴ in reviewing 30,000 cases of pregnancy found that in no case of pulmonary tuberculosis which became aggravated during pregnancy could he demonstrate that this aggravation had been due to pregnancy. In a recent report Royston, Jensen and Hauptman⁵ in a study of fifty-one cases also came to the conclusion that there is no evidence to show that pregnancy increases the usual risk of tuberculosis to become more severe.

During the last five years our own personal experience⁶ in handling these cases coincides with the foregoing experiences. The reasons why patients do well during gestation follow:

1. All the physiological processes function at their best during the period of pregnancy.

2. As the size of the gravid uterus gradually increases the intra-abdominal pressure is increased. This in turn results in a splinting of the diaphragm together with an elevation. As a result of this, changes in the size and contour of the chest take place which tend favorably to influence recovery from tuberculosis. The diaphragm during the latter half of gestation is elevated and the lungs become compressed, perhaps as much as 30 per cent, thereby putting the lungs at rest in the same manner as a phrenic nerve operation or a pneumoperitoneum does. There is great danger when labor suddenly causes the diaphragm to descend and expands the lungs. This effect can be modified or prevented by artificial pneumothorax, pneumoperitoneum or a phrenic operation immediately following labor.

CONCLUSIONS

1. The incidence of pulmonary tuberculosis is greatest between the years of 18 and 35 which, likewise, is the period of greatest fertility.

2. Proper obstetrical care with adequate treatment of tuberculosis is indicated.

3. All statistics that have been properly checked and controlled indicate that therapeutic termination of pregnancy in the presence of tuberculosis has no scientific basis whatsoever.

4. The question of therapeutic abortion is always of great significance and nowhere else is the clinician called upon to exercise keener judgment in his decisions than in this situation.

5. Abortion in women otherwise healthy is known to be fraught with grave danger; and the danger is much increased in the presence of clinically active tuberculosis.

6. In hopelessly advanced cases there is nothing gained by terminating pregnancy because you then have 100 per cent mortality. In arrested cases abortion is not only valueless but is actually harmful; and in the partially arrested cases abortion may do more harm than good.

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HEART DISEASE AND PREGNANCY

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Pregnancy increases the work of the heart but the exact underlying mechanism is poorly understood. The volume of the circulating blood is increased and, frequently at least, there is a physiological increase in the body weight which adds to the load on the heart. But when it actually comes to measuring this increase and expressing it in simple terms, the evidence is not concordant. However, pregnancy does place a real physical strain upon the heart for even apparently healthy women sometimes show signs of cardiac distress during pregnancy.

In the study of the effect of pregnancy on valvular disease of the heart it should be remembered that rheumatic heart disease is not continuously progressive but passes through phases of quiescence interrupted by periods of exacerbation. There is no evidence that normal pregnancy can affect these phases. Provided the circulation is compensated, there is no reason to believe that rheumatic heart disease should be aggravated by pregnancy; nor has it been possible to demonstrate that pregnancy shortens the life expectancy of the compensated cardiac patient.

The cardiologist is more concerned with those women who conceive when they are approaching decompensation and with those in whom the break comes during pregnancy. Late pregnancy and labor entail a real risk to such patients.

It follows logically that this problem should be attacked by preventing heart failure in pregnant women. Women unfit for motherhood should not become pregnant. Frank decompensation is obviously a contraindication to pregnancy but symptoms of a milder sort must be evaluated in the light of the patient's social and domestic circumstances.

Even in the absence of marked symptoms there may be evidence that the disease has almost run its course. Auricular fibrillation, marked cardiac enlargement and involvement of both the aortic and mitral valves are ominous signs, although none of them are in themselves incompatible with successful child-bearing.

Prenatal clinics must be developed further. They should contain an integral cardiological unit staffed with both cardiologists and obstetricians preferably through permanent appointments, for this alone will enable such clinics to gather the necessary experience.

Few cardiac patients compensated when they conceive will develop serious trouble if they follow adequate rules for care during pregnancy. Their activities should be adjusted to their capacity and any infection, especially colds, should be treated with the greatest of care.

The pregnancy should be interrupted only in case of heart failure which does not respond to treatment. In many cases, even though interruption is necessary, it may be possible to defer the operation until the thirty-sixth week or later when the chances for the infant are so much better.

Most cases can be delivered normally although usually forceps are applied during the final stages. One of the greatest recent advances in this field is cesarean section in serious cases. It is especially indicated in cases of decompensation near term. If a patient has the strength to stand normal delivery, this strain is preferable to the risk of operation; but if decompensation is manifest, cesarean section under local anaesthesia probably offers the best chance.

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APPENDICITIS IN PREGNANCY

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No one individual is given a sufficiently long span of life to see and manage personally a large series of cases of appendicitis complicating pregnancy. The literature of the last twenty years is replete with reports of single cases and small series but most physicians have had the opportunity of attending only a limited number.

Since the most fruitful child-bearing period, namely, between the twentieth and thirtieth years of life, is also the decade in which the incidence of appendicitis is greatest, it follows inevitably that the disease will complicate pregnancy most often during this period. Two hundred and seven of the four hundred and five cases in the series reviewed by Heineck occurred between the twentieth and thirtieth years of life. As Maes has aptly said, "The important consideration is that the disease can and frequently does complicate pregnancy rather than how often it develops."

More than 80 per cent of reported cases occurred during the first six months of pregnancy and relatively few during the last trimester. The symptoms of appendicitis occurring during the first trimester are comparable to those occurring in the non-pregnant woman and may be as classical and also as atypical as we all know this common disease can be. Marbury points out that as a result of the adjacent appendiceal inflammation the uterus may develop a hyperirritable tonus sufficient to cause noteworthy pain, even to simulate labor pains. We have observed this phenomenon. It must be remembered, too, that with the enlargement of the uterus a gradual upward displacement of the cecum and appendix occurs so that they eventually may lie under the liver. Correspondingly the cardinal sign of appendicitis, tenderness over the inflamed viscus, will tend to change its site from the right lower quadrant to a higher position. We feel that this valuable diagnostic sign has been slighted to an exceptional degree in the literature. Nausea, vomiting, temperature elevation, leukocytosis and muscular rigidity may all be absent but the presence of tenderness is always constant, its position varying with the position of the appendix. We believe that muscle spasm is an even less valuable criterion in pregnancy than it is ordinarily, obviously so because of the thinning of the abdominal musculature, particularly during the last trimester.

There is only one rational treatment of acute appendicitis and that is appendectomy. Pregnancy changes it not one whit. If anything, the urgency for surgical intervention is profoundly increased.

A high lying inflamed appendix may simulate cholecystic disease but it must be remembered that acute inflammation of the gallbladder is a much rarer complication than is appendicitis. Urinalysis and, if need be, ureteral catheterization will rule out that most common complication of pregnancy, pyelitis. Other surgical conditions such as ectopic gestation and twisted adnexal tumors likewise demand prompt surgical interference and their presence never should be allowed to cloud the picture sufficiently long to permit an inflamed appendix to rupture. There is not a surgeon whose acumen is such that he can countenance continued delay in the face of progressive signs until the finer "hair-split" shades of diagnosis are established; the patient and her new life are the ones who pay dearly for this.

Before the fetus is viable the treatment is surgical and after viability it is likewise surgical. It is of little moment whether the operative procedure is carried out through a right rectus or McBurney incision, the site of incision being determined by the tenderness and the degree of involvement. Whichever route is chosen, one first should locate the appendix and then make the incision several inches higher than appears necessary. The need for drainage depends upon whether or not perforation has occurred.

We believe that adequate morphinization to forestall labor is indicated postoperatively and that, in the absence of definite counterindications, nature should be allowed to prevail so far as delivery of the child is concerned. If the appendicitis occurs at or near term some authors recommend simultaneous cesarean section with appendectomy if the appendix is acutely inflamed and unruptured. It is felt that this is questionable surgical judgment and places a serious and unnecessary additional risk upon the mother. Certain authors insist upon a Porro operation or low cervical section in the presence of appendiceal abscess or peritonitis at or near term because, they say, contraction of the uterus incident to subsequent labor will contaminate further the general peritoneum.

Of greatest importance is early diagnosis; frequent observation until diagnosis has been made is essential. The mortality and morbidity in a properly timed operation for acute appendicitis during pregnancy, with careful observance of anatomical and physiological principles and gentle manipulation, should be well within normal limits as compared with the uncomplicated case.

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PREGNANCY AND RECTAL DISEASES

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Pregnancy with its accompanying physiological changes in the anatomical, circulatory and nervous systems is a predisposing condition to the development of diseases of the lower colon and rectum. A review of the records of a large number of women patients shows the beginning of their rectal disturbances occurred either during or following a trying pregnancy or a difficult delivery. The assumption the pregnancy or the delivery was the cause may or may not be true as many of these patients may have had previous rectal disease and pregnancy only aggravated the preexisting condition. In a large majority of cases the rectal disturbances are mild and can be treated conservatively until after delivery. However, if the condition becomes acute prompt attention must be instituted to avoid complications. Due to the always existing possibility of interrupting pregnancy, the treatment of acute rectal conditions in pregnant women should be one of prevention combined with such medical measures as are needed to prevent complications. Only when conservative measures fail should surgery be considered and then it should be limited to what is necessary to give relief. Let us review the most frequent acute rectal affections occurring during pregnancy with helpful suggestions as to treatment.

Hemorrhoids.—This condition in itself is without pain and is not serious but if it becomes acute a serious rectal complication can arise. The ideal treatment therefore is to instruct the patient to avoid those things that might excite an acute attack such as straining due to constipation, over-indulgence in alcohol, sexual excesses, irregular bowel habits, highly seasoned foods and mental and physical fatigue. Pregnant women should guard especially against constipation and should be advised to take frequent exercise and establish regular habits during the gestation period. When necessary to give a laxative, mineral oil and cascara are preferred and the use of drastic purgatives is condemned. Proper diet and careful hygienic care likewise must be emphasized. If an acute attack occurs with accompanying protrusion, bleeding, edema, swelling of the perianal tissues and spasm of the sphincters, efforts must be made to relieve pain, diminish swelling, prevent infection and stop

bleeding. This is best accomplished by rest in bed, a light diet and narcotics to relieve pain and spasm and to promote rest. The protruding mass is returned by gentle pressure and hot or cold applications with anesthetic ointments are applied to diminish the swelling. Mineral oil and small enemas of saline or oil will aid bowel evacuation. As the acute condition subsides frequent bathing of the parts and applications of antiseptic ointments will give much comfort to the patient and aid in preventing infection. If the condition is a simple thrombosed external hemorrhoid local infiltration and evacuation of the clot is the correct treatment.

Strangulated Hemorrhoids.—This is a serious complication and calls for quick and proper treatment. It is generally associated with chronic prolapsing hemorrhoids but may occur as an acute condition. It is caused either by constriction of the protruding mass by a spasmodic sphincter or infection of the mucous membrane of the rectum with resulting obstruction of the vessels of the hemorrhoidal tumor. Return circulation is prevented, the protruding mass becomes swollen, edematous and painful, stagnation of the blood current occurs and a portion of the bowel becomes gangrenous. This is followed by ulceration and bleeding and possibly infection, a complication that may cause the termination of pregnancy and endanger the mother. If the patient is seen before gangrene occurs, she is placed in the Trendelenburg position to help the return flow of blood and hot applications or boroglyceride are applied to the parts to maintain heat, encourage circulation and prevent sloughing. If there is no gangrene the incarcerated mass is returned under local anesthesia. If, however, gangrene does occur, evacuation of all clots and surgical removal by cautery of nonviable parts is indicated. Mineral oil and enemas are aids in elimination, pain is controlled by narcotics and any resulting abscesses are dealt with according to indications.

Fissure-in-Ano.—This pathological condition characterized by an irregular ulcer situated below the pectinate line, most frequently on the posterior aspect of the anal canal, is marked by the acute character and intensity of its symptoms. Due to muscle spasm and anal stenosis, defecation causes

severe pain which lasts for several hours. The only relief is between bowel movements and as a result the patient postpones them resulting in greater pain at the next movement. Dysuria and painful urination are among the most frequent complications. Treatment is directed toward putting the sphincters at rest, relieving pain and softening the feces. This is accomplished by the injection of an oil soluble anesthetic solution into the external sphincter which relaxes the sphincters, puts the parts to rest and allows the ulcer to heal. If sentinel pile is present, it can be removed under local anesthesia to permit proper drainage. Soft bowel movements are procured by proper diet and mineral oil given orally and as rectal instillation through a small rubber catheter. The local application of stimulants is also indicated.

Fistula-in-Ano.—Fistula-in-ano, which is often a complication of a fissure-in-ano but also occurring independently, must be handled conservatively. Establishing proper drainage is the only surgical intervention indicated, no extensive dissections being attempted.

Fecal Impaction.—The symptoms of impaction are ordinarily constipation or the sudden cessation of fecal movements followed in a short time by griping, heaviness or weight in the rectum and a tendency to diarrhea. This condition occurs most often in middle-aged, obese, flabby, constipated multiparous pregnant women. The rectal ampulla is the site most frequently involved. Pressure from the enlarged and displaced uterus probably plays some part in fecal impaction. The treatment again should be one of prevention by insisting on normal daily

sufficient bowel movements. This is best accomplished by a proper diet free from roughage which leaves little residue, the taking of mineral oil and the use of enemata as needed. If impaction occurs conservative efforts are made to soften the mass by enemas of oxgall and peroxide of hydrogen and mineral oil orally to aid the expulsion. If this fails the mass is removed digitally with or without anesthesia, care being exercised to avoid causing a miscarriage.

The most frequent acute rectal conditions occurring in pregnancy are caused by disturbances of function and have no bearing on the future handling of the patient or method of delivery. In this regard I call attention to two conditions complicating delivery; namely, stricture of the rectum and cancer of the rectum. It is the author's opinion that these two conditions are definite indications for cesarean section as the dangers of rupture of the rectum with resulting peritonitis are apparent and have occurred.

SUMMARY.

1. Certain acute rectal disorders tend to develop during pregnancies.
2. Prevention of these by proper prophylaxis will eliminate complications that may terminate pregnancy.
3. When prevention fails medical treatment is the method of choice but when necessary surgery of a conservative nature is employed.
4. Stricture of the rectum and cancer of the rectum are definite indications for cesarean section.

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PREGNANCY AND THE SKIN

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The ancient idea that the skin is merely a covering or envelope of the body has long since been disproved. The skin is recognized as a vital organ performing functions necessary to life and health. There is a close interrelationship between its functions and those of other vital organs so that a change in the general body economy or metabolism may produce a definite effect on the skin. Few changes in the body exert more striking effects on the skin than does pregnancy.

During pregnancy the glands of internal secretion often undergo changes in size and activity; the ovaries are usually decreased in size but the thyroid, the adrenal and the pituitary glands frequently are larger. Some observers believe that in the period of pregnancy the placenta functions as an internal secretory gland and by its hormones affects the other ductless glands. These variations in activity give to the skin of the pregnant woman certain characteristics which might be properly

classed as physiological changes. The facies of the gravid woman is coarser and pudgier than normal due to an enlargement of the cheeks and the nose and a thickening of the skin. These are all probably the result of disturbed pituitary secretion. The dry skin, the brittle nails and the lifeless, dry hair which becomes thinner, particularly near the end or following the pregnancy, undoubtedly are connected with a variation in thyroid activity. Brown spots or diffuse brown blotches occurring predominantly on the face and termed "the mask of pregnancy" are patches of chloasma. Increased pigmentation of the nipples, about the anus, on the vulva and axillae in addition to the chloasmic macules indicate an adrenal secretory variation.

The striae gravidarum are irregular, linear atrophic bands which follow cleavage lines of the skin and are due to a stretching and distension of the skin from pressure exerted by the enlarging uterus. They are located principally over the lower

abdomen, hips and thighs but may be elsewhere. These wavy, irregular bands are at first a red color from hemorrhage into the tissues but later are yellow, brown or pearl gray in color. They are from one half to one centimeter wide and from one to three centimeters in length.

These changes occur so frequently and with such regularity that they might correctly be termed the physiological skin characteristics of pregnancy. Certain other skin conditions which appear less often are apparently due to a more severe disturbance of body functions and are pathological entities. These skin eruptions cannot properly be termed dermatoses of pregnancy because they also occur in nonpregnant women, in men and in children, but they appear so often in pregnancy that there must be some relationship. Various observers consider them due to a toxemia, to an allergic reaction, to severe endocrine unbalances, to a change in the nervous mechanism and to a foreign protein reaction from materials absorbed by the mother from the fetus.

Of these dermatoses the most severe is impetigo herpetiformis. This is a rare disease of grave character which occurs most often in gravid women although it has been reported in nonpregnant females and in males. It appears usually in the groins, on the inner surfaces of the thighs, about the navel, on the breasts or the axillae as groups of pea sized pustules on inflammatory bases. These pustules rupture with a resultant ulceration and encrustation, spread by peripheral extension and by the formation of new pustules until the greater portion of the body surface and even the mucous membranes of the mouth, pharynx and esophagus may be involved. Chills, high fever, prostration, nausea and vomiting are concomitant symptoms and the disease frequently terminates in death. The cause of impetigo herpetiformis is unknown but in some cases it appears to be the result of a toxemia and in other instances to be secondary to some dysfunction of the parathyroid glands. Termination of the pregnancy occasionally is indicated and therapy always should be directed toward maintenance of a good general condition and the prevention and control of secondary infection. Some patients have responded to parathyroid and calcium administration and particularly to dihydrotachysterol.

A related although less grave disease is dermatitis herpetiformis which when occurring with pregnancy is known as herpes gestationis. This may appear at any period of the pregnancy and persist throughout but regresses spontaneously shortly after delivery. It recurs usually with each succeeding pregnancy. The disease rarely is manifested first in the puerperium. Herpes gestationis is characterized by erythematous spots and by papules which are grouped and spread peripherally to form polycyclic patches. On the surfaces of the papules and often at the periphery of the patches vesicles and occasionally bullae appear. They are intensely

pruritic with the result that they are soon ruptured by scratching and rubbing and are succeeded by excoriations, crusts, scales and later by pigmentation. Despite the severe itching which interferes with rest the patients surprisingly are in good condition. In the treatment, sources of focal infection should be sought, arsenic cautiously administered, soothing antipruritic lotions applied and sedation is often necessary. These are alleviative measures only as the disease will invariably persist until the end of the pregnancy.

Certain common dermatoses which are not peculiar to pregnancy may be initiated during or aggravated by the gravid state. Urticaria is not uncommon and although occasionally of the acute type is more often of a chronic, persistent character. Erythema multiforme develops less often than urticaria and may be either ephemeral or tenacious. Pruritus, when present, is an annoying complication. It may be generalized but more frequently is concentrated in the vulvar region with extension to the anus. Local congestion and hyperemia, a vaginal discharge and at times a preexistent tinea infection may predispose to the vulvar pruritus. For these dermatoses colloidal baths, powders and aqueous powdery solutions containing antipruritic drugs will afford relief better than will ointments.

There are other skin diseases upon which pregnancy may exert either a favorable or an unfavorable influence, or upon which no effect whatsoever is produced, e. g., eczema, acne, psoriasis and rosacea. Intertriginous and mycotic infections of the groins and infra-breast regions may be aggravated by the increased pressure and moisture from the enlarged abdomen, breasts and thighs. Tuberculosis of the skin is almost always made worse by the gravid state. An unusual recent phenomenon was a case of resistant pemphigus vulgaris which disappeared spontaneously in the third month of pregnancy. One month after delivery of a healthy child, the patient developed a breast abscess and the bullae of pemphigus recurred around the infected area. Despite the employment of all the recognized therapeutic measures, the pemphigus extended progressively and rapidly and death ensued in six months.

The skin eruptions of syphilis do not differ in pregnancy from the manifestations of the disease in the nonpregnant woman. The gravid woman tolerates antisyphilitic treatment surprisingly well.

Metropolitan Building.

INJECTION RELIEVES PAINFUL HEELS

Thirty-one of thirty-three persons were relieved of painful heels (calcaneal spurs) by a simple injection method which James R. Regan, M.D., Milwaukee, reports in *The Journal of the American Medical Association* for Feb. 4.

For the last five years Dr. Regan has injected one half cubic centimeter of sodium morrhuate in a 5 per cent solution of benzyl alcohol in those individuals with painful heels who did not respond to the use of well fitting supports, felt pads, shoe correction, etc.

RELATIONSHIP OF PRENATAL NUTRITION TO FETAL TOOTH DEVELOPMENT

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The ever increasing interest in preventive medicine and preventive dentistry together with the recent child welfare movements has caused considerable attention to be focused on the extremely high prevalence of dental pathological conditions among children.

The dental profession has made a serious effort to determine the best method of attacking this problem. Progress has been slow because we have not as yet fully determined the etiology of dental caries. At the present time it is safe only to say that the control of dental disease eventually depends on some form of prevention and not on mechanical repair after destruction of dental tissues has occurred.

Investigators have reported a number of factors which contribute to the process of tooth decay; i. e., heredity, nutrition, calcium-phosphate metabolism, glands of internal secretion, salivary reactions and bacteriological processes. Of these nutrition and its association with calcium-phosphate metabolism probably has received the greatest amount of attention. Research efforts in determining the part calcium-phosphate metabolism and vitamin D play in the prevention of dental caries closely parallels the investigations which have been made to determine the etiology and treatment of rickets.

There seems to be little doubt but that calcium-phosphate and vitamin D play an important part in the prevention and treatment of rickets; and since the teeth may be regarded as essentially skeletal structures, there is every reason to believe that the development and preservation of the teeth have the same basic requirements as the development and maintenance of the skeletal structures.

In attempting to take advantage of this knowledge, it seemed logical to pay special attention to the diet of pregnant women for the purpose of encouraging good dental development in the fetus. It was assumed that the soundness of the teeth of the child would depend to a large degree on the quality of the diet of the expectant mother. This was a reasonable assumption in view of the fact that the deciduous teeth begin to calcify about the seventeenth week of fetal life and that the greater portion of the crowns of the deciduous teeth are formed prior to birth.

Research workers have, however, been unable to find any scientific evidence to support this hypothesis. We are told that studies of the relationship between fetal and maternal nutrition indicate that the fetus is well protected in utero and that there appears to be only a slight relationship be-

tween the prenatal diet and tooth development of the fetus. In reviewing the literature we find that authorities report there is every reason to believe that the fetus will thrive at the expense of the mother, even if she is below par, and that the fetus takes precedence over the mother.

The study of enamel hypoplasia might serve as an index in determining the relationship of fetal and maternal nutrition to the development of the teeth. Enamel hypoplasia is not an uncommon condition affecting the teeth of children although perhaps it occurs more frequently in permanent than in deciduous teeth. It is considered significant that arrested enamel development is nearly always found in the neonatal ring and that the prenatal enamel nearly always appears to be of normal development.¹

We are told that, chronologically, maxillary abnormalities usually develop during the postnatal period and that these conditions cannot directly be associated with prenatal nutrition.

In spite of the fact that these observations might give us cause to doubt the importance of prenatal nutrition in promoting sound tooth development in the fetus, we are still confronted with the probability that a number of associated factors which are active during fetal development may produce tendencies toward dental weaknesses in the child.

It is perhaps true that the majority of cases of infantile rickets may be attributed to dystrophia after birth; nevertheless, several cases of "fetal rickets" have been reported.² These cases, it is true, were classed as extreme cases resulting from gross nutritional deficiencies and presenting clinical evidence of tetany, osteomalacia and a low blood calcium value. But it is quite possible that the problem may well be one of relative values. The extreme cases might reasonably indicate results which are immediately apparent while the milder cases of maternal malnutrition may produce only a tendency toward rickets or dental caries; the permanent dental follicles may, for instance, be seriously affected resulting in faulty tooth development.

After a study of a large number of pregnancies in the hospitals of London and Dublin, G. F. Smith concluded that maternal malnutrition increases the number of premature births. It is also well known that the incidence of enamel hypoplasia is extremely high among children prematurely born. This correlation deserves serious consideration.

A large portion of medical and dental literature has in the last few years been devoted to calcium

metabolism and calcium therapy. Most of the efforts made to determine the calcium demand in fetal development resulted in the conclusion that the pregnant female has only a definite amount of tidal calcium available, but it is generally agreed that, during gestation at least, the offspring takes what it needs regardless of the welfare of the mother. The situation is, however, reversed during lactation when the mother's milk, if deficient in calcium, would not supply the requirements for the infant.

Authorities agree that the clinical picture is much clearer when we consider prenatal nutrition from the standpoint of protecting the mother from calcium-phosphorus depletion. "For every child a tooth" is not a hollow phrase by any means. The dental profession is fully aware of the increased incidence of dental decay in the teeth of pregnant women. It has not been shown clearly whether the fetus draws on the stored calcium in the bones and teeth of the mother when the maternal serum is low in available calcium, or whether the metabolic disturbances produce a higher susceptibility through changes in the salivary secretions. The fact remains that a prenatal diet rich in calcium will lower the incidence of dental decay in the teeth of expectant mothers. Whether calcium in sufficient quantities can be obtained from the usual calcium-bearing foods or whether the diet should be fortified with calcium chloride, calcium lactate, calcium gluconate or viosterol is a matter for the attending physician to decide.

In conclusion, it may be safely said that every reasonable argument would indicate that the benefits of an adequate prenatal diet far overshadow the doubtful elements involved. Thus, it would seem wise to make every effort to include prenatal nutrition in our health educational activities.

State Board of Health.

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FRACTURES OF ARM JUST ABOVE ELBOW ARE MOST DIFFICULT TO TREAT

The most difficult fractures to treat are those of the arm, just above the elbow, George J. Garceau, M.D., Indianapolis, points out in *The Journal of the American Medical Association* for Feb. 18.

The physician should consult with an orthopedic or bone surgeon in difficult cases of such fractures. Dr. Garceau says, basing his paper on an analysis of 133 fractures of this type. These fractures occur most frequently in children. Immediate reduction (alignment) of the fracture promises good results. Delay makes reduction more difficult because the soft tissues become hard and the muscles and tendons contract. With delay it may become necessary to open the elbow and reduce the fracture. This slows up the recovery.

When only one of the eminences is loose from the rest of the bone it is usually necessary to reduce it by open operation.

ROCKY MOUNTAIN SPOTTED FEVER

REPORT OF CASE

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Carey and Duncan¹ cite some statistics from the United States Public Health Reports (1925-1935) in which the reported cases of Rocky Mountain fever are listed. Many cases had been encountered in the eastern and southern states but none had been reported from Missouri. I have taken the trouble to go over the Public Health reports since 1935 and while there seems to be a general increase in the prevalence of the disease in other states, Missouri has apparently been very fortunate; not a single case was reported. However, inquiry at the St. Louis Health Department revealed that three cases of this disease had been reported in recent years, one in September, 1934, another in July, 1936, and a third in June, 1938. Apparently the disease is invading our state. No doubt many of the cases are not diagnosed. Holdenried and Hagebush² reported a case in a man 41 years of age who presented symptoms suggestive of this disease but laboratory findings were negative. As the disease is on the increase and other ticks besides the *Dermacentor* may serve as a vector, it is wise for the practitioner to keep in mind the salient features of the symptoms. The following case illustrates the clinical manifestations and the difficulties in diagnosis.

REPORT OF CASE

E. B., boy, aged 5 years, resides on a farm near Cuba, Missouri, with his parents and three siblings. He was admitted to the Bethesda Hospital July 15, 1938.

The illness began two days prior to admittance with a throbbing headache followed that night with a severe convulsion lasting several minutes. The convulsion was characterized by stiffness of the body, retraction of the neck and violent jerking movements of the extremities. After the convulsive seizure, vomiting began and persisted for several hours. No defecation occurred during the first two days. A high fever was present from the beginning of the illness. On the second day of the disease he developed a rash, apparently beginning on the extremities. The child was nervous, irritable and drowsy.

The boy has been reared on the farm with brothers and sisters. He had several spasms during his infancy, the last one occurring in 1935. He had had whooping cough. The water for family use was usually obtained from a cistern, but this failed about two weeks earlier and water for drinking and washing purposes was obtained from a small stream of water about one-fourth mile from a spring which was its source. A few days before the onset of the illness three big ticks were removed from the child's scalp, but the kind of tick (dog tick or cattle tick) was not determined; the family has one dog.

The family history revealed that the parents had had convulsions during early childhood, two of the siblings also had spasms; one sister had died of meningitis. Mother and father healthy and there is no history of tuberculosis, syphilis, malaria or chronic nervous diseases in the family.

The slenderly built child seemed extremely prostrated and soporose. The impaired consciousness was

manifest by a confusion of responses on verbal and physical stimuli; one got the impression of an encephalitic syndrome, yet the neck was not rigid. Brudzinski's and Kernig's signs were absent; however, some stiffness of the back was suggested on attempting to flex the trunk. The skin and tendon reflexes were normal. The skin was covered with a macular rash profuse all over the body and extremities, not so much on the face. The lesion consisted of rose red macules from 2 to 5 millimeters in diameter, irregular in shape. Some of the macules seemed to have a slight elevation above the skin. The lesions did not disappear entirely on pressure. Many of them had a hemorrhagic appearance as in purpura. This purpuric feature became more marked after a few days. The rash was especially profuse on the flexor surfaces of the extremities.

The abdomen was moderately distended and the musculature somewhat more rigid than would be expected in a child who had been vomiting. The tip of the spleen was readily palpated. A doubtful tenderness was detected in the right lower quadrant. A general examination of the scalp, eyes, neck, throat, heart and lungs proved them normal, except the cervical glands were palpable and a small ulcer was found in the mouth.

The child's temperature on admission was 103 F., pulse 128, respiration 26.

On the following day the child seemed more prostrated, lethargic and almost comatose. The rash had become more purpuric, the temperature ranged from 101 to 104 F. This semicomatose condition persisted for several days but lumbar puncture gave some relief.

Improvement commenced about the fifteenth day of the disease by a gradual decline in temperature and a distinct improvement in the general symptoms including the eruption. A corroborative sign of vascular disease was noticed on the sixth day of the disease. Both arms were constricted by a tourniquet for a few moments in order to obtain blood for examination and on the following day a multitude of purpuric spots were visible over the whole forearm and hands. The course of the disease is best shown by the temperature curve. The treatment other than the general care consisted of quinine sulphate, 6 grains daily for a few days. Twice for a short period sulfanilamide was administered; neither of the drugs had any perceptible effect.

Laboratory Data.—On July 15 the white cell count was 11,350 with 75 segments, 12.5 lymphocytes, 6 mononuclears, 1 eosinophile; clotting time was 4 minutes, and Hb. 80 per cent. On July 18 white cell count was 8050 with 54 segments, 38 lymphocytes, 5 mononuclears, 2 eosinophiles; no plasmodia. On July 22 white cell count was 24,000 with 77 segments, 12 lymphocytes, 3 mononuclears, 8 stabs. On July 28 white cell count was 10,900, 42 segments, 50 lymphocytes, 5 mononuclears. On August 4 white cell count was 8750 with 42 segments, 50 lymphocytes, 5 mononuclears. Blood cultures on July 15 and 17 were negative. Blood sent to the St. Louis City Laboratory was reported negative for growth. Staphylococcus predominated in nose and throat cultures, no diphtheria bacilli. Lumbar puncture was done on July 18 and the fluid was clear and seemed to be under pressure; sugar content was normal, globulin present and 12 cells per cc.; culture negative. Patient was rather constipated and some distention was relieved by an enema. The stool contained only a few cells when examined fresh; no increase in the number of cells on repeated examination. Stool stained for bacteria revealed nothing unusual. Specific gravity of urine was 1020 and 1010; no sugar, albumin or microscopic cells present. An intradermal tuberculin test gave no reaction. Kahn test was negative. Agglutination tests for *B. typhosus*, *B. tularensis* and *B. abortus* were negative on July 22 and 27.

When all these tests were negative a Weil-Felix test for Rocky Mountain spotted fever was made. The blood

for this test was taken on July 27. Dr. Willette of the St. Louis City Laboratory reported that the test was strongly positive in a dilution of 1 to 640. A guinea pig inoculated intraperitoneally showed no abnormal symptoms after ten days. It is believed that this failure was due to the fact that the blood was obtained from the patient so late in the course of the disease.

COMMENT

A discussion of the etiology and incidence of the disease seems unnecessary here. It is a curious disease but the clinical features are sufficiently sharp to make a diagnosis. It is an acute febrile disease occurring in the summer, characterized by a high fever resembling typhoid, accompanied by a persistent macular and purpuric rash which appears from the third to fifth day, showing severe nervous symptoms and slight muscular rigidity and ending in recovery in the majority of cases.

As the malady usually is regarded as a rare disease one does not think of it; in fact, I did not suspect that this case might be Rocky Mountain fever for more than a week. In the early stages evidence of some septic disease was sought; osteomyelitis, abscess in the nasal sinuses, even abscess of the

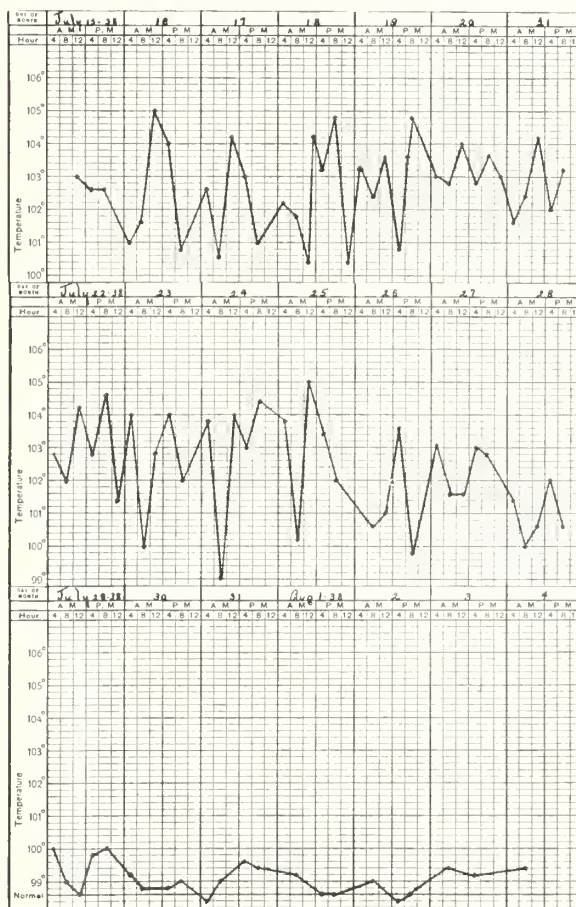


Fig. 1. Fever curve of case of spotted fever. Note that the curve resembles that found in typhoid fever in children. The defervescence of the fever was preceded by a chill and a marked rise in temperature on July 25. This was the fourteenth day of the disease.

brain, malaria, miliary tuberculosis, typhoid fever, tularemia and endocarditis were considered. The curious rash, however, should have put us on guard a few days earlier.

The complete recovery of our patient, while we were working on the diagnosis, was gratifying, an experience not entirely foreign to a practitioner's work. This case warns us to watch for spotted fever in the Ozark country.

536 N. Taylor.

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NUPERCALINE

ITS PLACE IN UROLOGIC PRACTICE

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AND

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Nupercaine has been popular with us because we have found that it produces adequate anesthesia of long duration with the production of only one toxic reaction in a series of 15,000 administrations. Because of its long lasting action the patient is not only comfortable when he leaves the office but also for from three to seven hours afterward. His nervous system, therefore, has adequate time to recover from any shock to which it may have been subjected. The chief value of nupercaine in urologic practice has been in topical application although we have also used it for local infiltration and spinal anesthesia.

The concentration of nupercaine used ranges from 1:500 to 1:1500. It is never necessary to use concentrations stronger than 1:500. For topical or infiltration anesthesia 1:1000 is most generally used. To prepare a 1:1000 solution, one 50 milligram tablet is dissolved in 50 cubic centimeters of physiological salt solution. For spinal anesthesia, special ampules of a 1:1500 solution are available. In administering nupercaine it is well to remember that its speed of action is somewhat less than that of cocaine and that from five to ten minutes are necessary to secure adequate anesthesia.

The chief danger from the use of nupercaine is in the use of stronger solutions than those recommended above. Because of the time honored concentration of other local anesthetics, all of which are used in greater strength, serious errors might occur in the preparation of the nupercaine solution as 1 per cent prepared by mistake instead of 1:1000. Mistakes have occurred, however, with other local anesthetics as well. All too often urologists are handed 20 per cent or 30 per cent solutions of cocaine when a 2 or 3 per cent solution is wanted. The two types of toxic manifestations which occur with cocaine and cocaine derivatives,

namely, tetanic convulsions and shock, can be controlled by the injection of a barbiturate intravenously. The one toxic manifestation which we saw occurred in a woman who had had nupercaine administered about fifty times and evidently had become sensitive to it. The cold, somewhat clammy sweat with a thready pulse was relieved by the administration of dial. Subsequently many injections of nupercaine were given which, when preceded by dial tablet of 1½ grains, produced no toxic effects.

The uses of nupercaine as a topical anesthetic are many. We have used it for the following purposes: (1) As a local anesthetic in the urethra prior to urethral dilatation with sound or Kollmann dilator; (2) as a local anesthetic in acute posterior urethritis; (3) in the early and fulminating types of gonococcus infections in the male to allay the pain and make treatment possible; (4) as a local anesthetic in the urethra and bladder for cystoscopy; (5) as an injection in the ureters and renal pelves following cystoscopy or injection into the ureters for ureteral stone; (6) in the treatment of simple cystitis and trigonitis of women; (7) in the treatment of tuberculosis of the bladder with dysuria; (8) in the treatment of ulcers of the bladder; (9) to relieve temporarily the distress of bladder stones, and (10) to relieve pain in carcinoma of the bladder or prostate.

FOR URETHRAL INSTRUMENTATION

Many physicians have been trained in urethral instrumentation without anesthesia. The passing of urethral instruments without anesthesia for the development of proper sense of touch is probably necessary to avoid injury to the urethra by the inexperienced practitioner. However, when the period of education has past, anesthesia should be used regularly before all urethral instrumentation. If there is any doubt as to the sensitiveness of the urethra, touch the tip of a sound to the terminal portion of your own urethra. Never again will you pass a sound on some one else without adequate local anesthesia.

For anesthetizing the urethra a B-D bulb syringe of 10 cubic centimeter capacity is filled with 1:1000 nupercaine solution, injected into the urethra and retained for from five to ten minutes by means of a small spring clamp such as those sold by C. R. Bard and Company. At the end of that time a sound or Kollmann dilator can be used with little pain to the patient. Often it is essential that a dilatation be followed by the instillation of 0.5 per cent solution of silver nitrate. The instillation of silver nitrate is quite unpleasant without anesthesia but because of the lasting effect of nupercaine the astringent action of silver nitrate is not felt at the time of instillation nor afterward.

ACUTE POSTERIOR URETHRITIS

This usually occurs as a complication of gonorrhea but may occur with any acute prostatitis of

nonspecific origin. The chief symptom is a severe dysuria. Often the patient must void every fifteen minutes not only during the daytime but also during the night. This complication was more common before the regular use of sulphanilamide than it is at the present time. However, dramatic relief is given patients by the instillation of 0.5 per cent of silver nitrate into the posterior urethra. Without anesthesia the average patient says he feels as if hot lead had been put into his urethra. With anesthesia a painless instillation of silver nitrate can be made which is of sufficient strength to produce the desired therapeutic effect.

SEVERE GONOCOCCIC INFECTIONS

In severe gonococcic infections which do not yield to local injections of sulphanilamide therapy, the patient suffers great pain from the intense inflammation of the urethra and the infiltration of the corpus spongiosum (*corpus cavernosum urethrae*). This may develop into the condition called "chordee" by the French, and is characterized by a ventral curvature of the penis so that it curves downward between the legs. The usual treatment of these cases is to discontinue medication of the mucous membrane. The injection of nupercaine solution allays the pain and relieves the physical and, therefore particularly, the mental distress from which so many of these patients suffer.

LOCAL ANESTHESIA IN CYSTOSCOPY

The most desirable feature concerning nupercaine anesthesia is its long period of effectiveness. Therefore, not only is there adequate anesthesia for performing the cystoscopy but there is little afterpain. The burning pain which occurs on voiding the first or second time after cystoscopy is largely avoided.

ANESTHESIA FOLLOWING URETERAL CATHETERIZATION

Skiodan solution has largely done away with the pain incident to ureteral catheterization and the taking of pyelo-ureterograms, and the severe colic which followed these procedures. For those who still prefer sodium iodide for roentgen ray contrast medium, the instillation of a few cubic centimeters of 1:1000 nupercaine solution is recommended to alleviate the spasm of the ureter caused by sodium iodide.

TREATMENT OF CYSTITIS OR TRIGONITIS

The treatment of the common type of cystitis or trigonitis occurring in women, with its predominating symptoms of urinary frequency which fails to respond to any known medication by mouth, is often a great source of annoyance to the practitioner. For these cases we recommend 1:1000 solution of nupercaine followed by a weak solution of silver nitrate. Dramatic results are the general rule. If no effect is obtained in from one to three such treatments further urological examination is then indicated.

TUBERCULOUS BLADDER

About thirty-five years ago Rovsing suggested the use of a 1 per cent solution of phenol in the bladder to allay the pain and spasm of a tuberculous bladder. This procedure has been in use by urologists for many years and has been a satisfactory form of treatment. It was thought at first that the good effect of this treatment was dependent upon the antiseptic qualities of the carbolic acid but it is apparent that this is not entirely the case. We know that the bladder mucosa is made up of stratified squamous epithelium and is more nearly like skin than any other mucous membrane. We also know that carbolic acid is a skin anesthetic. When rubbed upon the skin in a 1 per cent solution it will produce a distinct anesthesia in most people. The same thing then happens in the bladder. Nupercaine, however, has one more important added quality which is not present in carbolic acid, that when a solution of 1:1000 nupercaine is left in a tuberculous bladder for from fifteen to twenty minutes, the anesthesia which it induces upon the mucous surface of the bladder persists over a period of from five to seven hours giving the patient a great deal of relief, a type of relief quite analogous to the collapse of a lung which is done by a pneumothorax. The good effect of nupercaine thus is out of all proportion to the antiseptic qualities of the drug or really to its anesthetizing properties.

ULCER OF THE BLADDER WALL

In this most distressing of all the ailments which may affect the bladder we have an agency which can give the patient considerably more relief than is afforded by almost any other agent. Ulcers in the bladder wall are insidious in their onset. They are frequently hidden from sight and cannot be discovered by cystoscopy although they usually are discovered upon repeated examination when the history of this type of ulcer is clearly kept in mind. To have some medicament which can be instilled into the bladder and which is powerful enough to bring relief from this most excruciating type of bladder pain is certainly a great comfort to the patient as well as to the doctor. In cases of ulcer of the bladder wall a 1:1000 solution of nupercaine introduced into the bladder and allowed to remain in the bladder for about twenty minutes relieves this terrible pain which accompanies these ulcers of the bladder for a week at a time. The application of nupercaine in this way is, of course, only palliative and the patient should be seen by a competent urologist as soon as possible.

DISTRESS ACCOMPANYING STONE IN THE BLADDER

In this type of disorder nupercaine acts favorably as a palliative treatment until surgical relief can be instituted. Ten cubic centimeters of a 1:1000 solution of nupercaine is instilled into the empty bladder and allowed to remain for fifteen minutes.

CERTAIN CASES OF CARCINOMA OF THE BLADDER

It is well known that in the terminal stages of carcinoma of the bladder the patient suffers a great deal because of dysuria and intense pain in the bladder region. The introduction of 1:1000 nupercaine solution in most instances acts favorably and prevents the spasm and pain that would otherwise cause the patient great misery. We have been able to keep such hopeless sufferers upon this treatment for months without ill effect, thus making them comfortable without resorting to morphine.

LOCAL INFILTRATION AND SPINAL ANESTHESIA

We have not used nupercaine extensively for this purpose. Its use has been limited chiefly to that of circumcision or vasectomy where the quantity of the anesthetic used has not been more than from 5 to 10 cc. Satisfactory anesthesia was obtained with a 1:1000 solution.

Our use of nupercaine as a spinal anesthetic has also been limited. We have used it only in cases requiring a low block such as in transurethral surgery. We have found it gives anesthesia of long duration with a minimum drop in blood pressure.

SUMMARY

1. We have used nupercaine as a local anesthetic to the mucous membrane of the urinary tract 15,000 times with the development of one minor toxic reaction.

2. Its chief virtue in addition to its low toxicity is the duration of anesthesia which contributes much to the postoperative comfort of the ambulatory patient and is important in the treatment of some painful urinary conditions.

3. We have used nupercaine routinely in dilations of the urethra, cystoscopy, often in the treatment of severe urethritis and prostatitis in men, in cystitis and trigonitis in women, and in the alleviation of pain of the tuberculous or carcinomatous bladder, and to alleviate pain temporarily in cases with bladder stone.

4. The concentration of the solution used is generally 1:1000, never more than 1:500. The amount used has never exceeded 30 cubic centimeters (1 ounce).

1530 Professional Bldg.

VENEREAL LYMPHOGRANULOMA TREATED

Successful treatment of venereal lymphogranuloma (a specific venereal disease affecting chiefly the lymphatic tissues of the iliac and groin regions) with sulfanilamide is reported by Alva A. Knight, M.D., and Vernon C. David, M.D., Chicago, in *The Journal of the American Medical Association* for Feb. 11.

Although confining their article to histories of two such cases treated by them, the authors point out that they have successfully treated several other patients suffering from the same condition and say that they believe their results are sufficiently satisfactory to advise that sulfanilamide be given a thorough trial in this type of infection.

PYELITIS DUE TO *B. DYSENTERIAE*
(FLEXNER)

WITH RESPONSE TO SULFANILAMIDE

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One of the less dramatic but more interesting applications of sulfanilamide which has been developed is its use in chronic pyelitis. Credit for working out the indications and limitations of this method must go in large part to Helmholtz, Buchtel, Cook and others at the Mayo Clinic.^{1,2,3} They have demonstrated that, in general, sulfanilamide is a more powerful urinary antiseptic than mandelic acid and that in two conditions it may prove effectual when other forms of treatment are entirely unsatisfactory. These are cases in which the renal function is decreased to the point to which other urinary antiseptics cannot be excreted in therapeutic amounts and in infestations with *B. proteus* in which the urine cannot be acidified. Its chief disadvantage lies in the rather frequent appearance of complications which render it impossible to continue the administration of the drug. The more important of these are progressive leukopenia, hemolytic anemia, hepatitis, dermatitis, severe headaches, fever and severe gastro-intestinal upsets. Sulfanilamide is usually not effective in infections due to the enterococcus.

The following case of pyelitis due to the Flexner dysentery bacillus is presented as indicating an extension of the above mentioned indications for sulfanilamide in the genito-urinary tract to include infections due to this organism.

CASE REPORT

The patient, a white female, now (1938) aged 27 years has been married for four years. Aside from the following events she has had no significant illnesses although she has always been underweight and rather delicate in appearance. In 1928 while living in Kansas City she developed a hemolytic streptococcus septicemia following scarlet fever. This lasted three weeks, finally responding to streptococcus antitoxin. Although she was not hospitalized during this illness and no urinalyses were done, there were no genito-urinary symptoms at the time. In 1933 an osteochondroma of the tibia was removed at a local hospital. At this time routine urinalyses were normal.

In August, 1936, while on a motor trip through the East she developed polyuria and dysuria with symptomatic relief on medication. After returning home in September these symptoms recurred and were accompanied by fever, headache and pain in the left flank. At this time a urinalysis showed a neutral reaction, 1 plus albumin, numerous white blood cells, occasional red blood cells, and occasional bacteria. Examination of the blood showed red blood count 3,500,000, Hb. 67 per cent, white blood count 7900, with 28 per cent stabs, 66 per cent segments, 1 per cent monocytes and 5 per cent lymphocytes. The nonprotein nitrogen was 30 mg. per cent. A concentration and a dilution test revealed specific gravities of 1.012 and 1.005 respectively. Her weight was 101 pounds and blood pressure 110/80.

She was placed on a regime of urotropin and ammonium chloride alternating with alkalis for periods of

four days each and gradually improved symptomatically. In October there was a recurrence of the symptoms and an associated episode of abdominal cramps and diarrhea which required bismuth for relief. From October, 1936, until July, 1937, she had sporadic episodes of diarrhea and recurrences of her genito-urinary symptoms. During this interval she was living in another community and had intermittent treatment with urotropin. She then returned to Boonville and was seen because of these symptoms and because of a five months' pregnancy. Physical examination revealed slight tenderness in both flanks, moderate edema of the ankles and a blood pressure of 130/80. Laboratory examination showed: red blood count 3,090,000; Hb. 60 per cent; white blood count 10,800. The urine contained 3 plus albumin, there were 2 or 3 red blood cells and white blood cells per high power field and occasional bacteria and there were white and red cells and casts in the uncentrifuged specimen. The nonprotein nitrogen was 59 mg. per cent. She was hospitalized and cystoscopy was done which revealed slight bilateral dilatation of the renal pelvis, no dilatation of the ureters and no evidence of obstruction or of calculi. Cultures of the urine from both ureters contained a gram-negative bacillus which was identified by sugar reactions with confirmation by agglutination to full titer with the specific antisera as *B. dysenteriae* Flexner. Following cystoscopy she was given large amounts of hypertonic glucose intravenously and there was a gradual fall of the nonprotein nitrogen to 38 mg. per cent.

The urine was then acidified with ammonium chloride and with the hydrogen ion concentration maintained between 4.5 and 5.0 she was given 180 grains of ammonium mandelate daily for five days. The fluids were restricted to 1000 cc. daily. At the end of this time there was no decrease in bacterial count of the catheterized urine as indicated by bacterial growth on medium. Although she was nauseated and lost her appetite there was no vomiting or diarrhea during this period. Coincident with the acidification there was a drop in the CO_2 combining power of the blood to 39 volume percentage. This medication was then discontinued and she was given 10 grains of sulfanilamide every four hours for five doses daily for a period of ten days. The fluids were restricted to approximately 1000 cc. daily. Following this the white blood cells and the majority of the albumin and casts disappeared from the urine and three consecutive cultures of bladder urine were sterile. She was delivered on October 30, 1937, and two weeks later developed pyelitis with pain in the left kidney. Cultures at this time showed the infection to be due to an enterococcus and *B. coli*. Ammonium mandelate was given as above with the single exception that the hydrogen ion concentration could not be lowered below 5.2 and the infection cleared satisfactorily. At the present date, May 10, 1938, there has been no recurrence of the Flexner dysentery organism and there have been no other episodes of diarrhea.

SUMMARY

A case of bilateral pyelitis due to *B. dysenteriae* Flexner in a patient with impaired renal function is presented. Following a failure with other urinary antiseptics, sterilization without recurrence for a period of six months was obtained with sulfanilamide.

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HEAD INJURIES AND THEIR MENTAL SEQUELAE

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There are several controversial points in connection with head injuries and the pathological mental conditions which may follow them. The distinction between a group of symptoms due to pathological changes in the brain and one which is purely psychoneurotic is the most frequent controversial point. The possibility also exists that cases may combine these two conditions.

If the presence of hysterical stigmata of the usual types can be taken as evidence of the nonorganic nature of the symptoms, certainly the majority of instances of head injury which are examined in litigation combine the two conditions.

Seventy-five cases of head injury have been selected from my records. Most of them were examined for the purpose of testifying before workmen's compensation commissions and state courts. In all of them there is a definite history of head injury with unconsciousness varying in length from a few seconds to many days. Examinations were made from two months to three years after the accident.

The diagnoses are distributed as follow: paresis precipitated by brain injury, 2; cerebral arteriosclerosis aggravated by injury, 1; manic-depressive psychosis 2; traumatic epilepsy, 1; subdural hematoma, 2; traumatic psychosis, 3; psychoneurosis, 64.

PATHOLOGY OF BRAIN INJURIES

Contributions to knowledge of the histological effects of head injuries upon the brain have been made in recent years by Osnato, Martland, Cassasa and others. There does not seem to be any clear and generally accepted understanding of the term concussion. The most concise definition is one of the oldest, "The result of shake, independent of lesion." (Quain.) At present the tendency is to assume that minute lesions are present in all concussions.

FACTORS DETERMINING THE NATURE OF BRAIN INJURIES

1. Fracture of the skull may be conservative by (a) concentrating the energy of the impact in cracking the bone instead of diffusing it through the soft parts, and (b) by effecting a small amount of decompression against the subsequent swelling.
2. The cerebrum is more vulnerable than the brain stem to a wave of impact because the latter is anchored by the cranial nerves.
3. The blood vessels between the cerebrum and the superior longitudinal sinus are light in structure

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and unsupported. They are easily ruptured by a blow and produce the rather frequent subdural hematoma.

4. Difference in density between white and gray matter produces a shearing effect under a blow which tends to rupture blood vessels.

5. Impact may produce crushing of the brain at the point beneath and also at the diametrically opposite point.

6. Cassasa explains multiple punctate hemorrhages in the following way: Accepting the existence of perivascular spaces with fibrillae extending across them from blood vessels to brain substance, he assumes that an impact produces a wave of pressure which distends the spaces and may rupture vessels at the point of attachment of the fibrils.

7. Adopting the generally accepted view that neurons lie in contact with an outshoot of the perivascular spaces from which they absorb food and oxygen, and into which they discharge katabolic materials, it seems probable that perivascular hemorrhages would interfere with the nutrition of these cells in the same way that the perivascular cuffing of lymphocytes in encephalitis and paresis affect them.

8. Edema due to reaction to injury produces brain swelling, interferes with nutrition and particularly with free supply of oxygen to the nerve cells which are peculiarly susceptible to lack of this substance. Anoxemia in turn increases the permeability of vessel walls and adds to the edema.

9. Fay emphasizes the effect of subarachnoid bleeding in stopping the current of cerebrospinal fluid by blocking the Pacchionian bodies, thus contributing to increase of intracranial tension.

Some of the possible effects which have just been mentioned are not frequent. Subdural hematoma occurred twice in seventy-five cases. The multiple punctate hemorrhages found by Cassasa are rare, his five cases being the only ones encountered in ten years during which many thousand cases were examined. Increase of intracranial tension by stoppage of the Pacchionian bodies by blood cells has actually been observed in few instances.

IMMEDIATE EFFECTS OF HEAD TRAUMA

A certain proportion of severe injuries leads to death regardless of the treatment. The best example to demonstrate the effects of trauma to the brain is a moderately severe case. Unconsciousness is immediate, the color is pale, pulse and respiration are weak, muscles are flaccid and reflexes are absent. The condition is one of shock. After a variable period, averaging an hour, restlessness appears, the face flushes, the pulse becomes strong and rapid and the mental state may be one of delirium and even maniacal excitement. Later the breathing may become stertorous and irregular and the pulse slow down.

The corresponding pathological changes seem to be first an inhibition of neuron function due to impact which is transmitted throughout the brain and

may produce a multitude of minor lesions. Following this, reactive changes begin with edema. This corresponds to the delirious stage. As the edema increases, intracranial pressure rises, anemia and especially anoxemia interfere with nutrition and the pulse slows. Headache becomes severe if the patient is conscious.

In the majority of cases, either by indirect dehydration or spontaneously, the pressure is relieved, function begins to return and recovery ensues. In the stage of excitement which follows the initial shock there is evidently a delicate balance of physiological processes which determine whether resolution occurs early enough to avoid irrecoverable damage to the brain or whether the process continues beyond this point to produce permanent effects of varying severity.

The use of hypertonic solutions of salt, dextrose or sucrose intravenously, spinal drainage and withdrawal of fluid by means of magnesium sulphate enemas seem often to turn the tide toward resorption of the fluid with reduction of pressure and restoration of function. Naturally during this critical period the least possible fluid should be given.

In the rare cases in which clinical evidence of increasing intracranial pressure exists in spite of these measures a decompressive operation is indicated.

Persistence of pressure and anoxemia to such a point that nerve cells cannot recover or, in rare cases, the evolution and subsequent scarring of multiple lesions throughout the brain forms the pathological basis of the types of traumatic psychosis which may vary from the traumatic constitution to various degrees of dementia.

PARESIS PRECIPITATED BY HEAD INJURY REPORT OF A CASE

Case 1. A workman in good health was struck on the left side of the head by an iron bar, was unconscious for half an hour and passed through a short delirious phase. On examination three hours later he was unconscious, complained of severe headache and nausea, was deaf in the left ear and complained of weakness in the right leg. On admission to the hospital four days later he was comfortable, mentally normal but totally deaf in the left ear and had weakness, increased tendon reflexes and a Babinski sign on the right side. He had a four plus Wassermann reaction and a clear spinal fluid with normal cell count and a normal colloidal gold curve. The Wassermann test was reported anticomplementary, but the Kahn test was positive. A week later he became euphoric, developed grandiose delusions and a spinal fluid examination at this time showed thirty cells with increased globulin and gave a paretic type of gold curve with a positive Wassermann reaction. Trauma was considered to be the precipitating factor in this case.

CEREBRAL ARTERIOSCLEROSIS AGGRAVATED BY HEAD INJURY

REPORT OF CASE

Case 2. A man, aged 54, with blood pressure of 130 with retinal and peripheral arteriosclerosis and with no evidence of syphilis, had been showing slight memory failure and emotional instability for some months. He

was struck on the head by an elevator and was unconscious for a few minutes; upon regaining consciousness complained of headache and dizziness. There was no paralysis but from that time he deteriorated mentally at an accelerated rate and in six months had reached a stage of severe dementia. Autopsy a year later showed widespread sclerotic changes with multiple areas of softening in the brain but nothing that could be interpreted as a direct injury from trauma.

There is little evidence to show by what process trauma may accelerate the arteriosclerotic process. There are a number of cases on record in which, as in this instance, typical symptoms of arteriosclerotic deterioration were greatly hastened after head injury. This fact may be connected with the observation that older persons tolerate head trauma poorly.

MANIC-DEPRESSIVE AND SCHIZOPHRENIC PSYCHOSES

The relationship of these conditions to brain trauma is usually favored more by plaintiff's attorneys than by physicians. The psychiatrist is not greatly impressed by the fact that the psychosis follows the trauma unless he can trace a logical connection from one to the other. He remembers that in the great majority of cases these mental disorders develop without trauma and that they follow trauma so rarely as not to exceed the probability of chance coincidence. There is some probability that when a person is about to manifest a psychosis, the emotional accompaniments of a head injury may accelerate it.

TRAUMATIC EPILEPSY

The statistics of traumatic epilepsy depend mostly on experience in the great war. Unfortunately the percentage given by different writers varies greatly, ranging from 5 to 20 per cent or more. The reports of Foerster and others indicate that injuries in the parietal region with laceration of the meninges and cortex are most likely to produce epilepsy. There are a few cases on record in which epilepsy has followed minor head injuries without any demonstrable laceration of tissue at all. The most probable interpretation of the latter group is that the patients are potential epileptics in whom a slight insult may set off a series of convulsions. Since the proportion of epileptics in the general population is about one to four hundred, the likelihood of coincidence is always to be considered.

In one of the cases of this series a settlement was made on the basis of traumatic epilepsy following three months after a brain concussion with unconsciousness and a delirious episode lasting three days. It transpired later that the patient had suffered from epilepsy for years before the accident.

SUBDURAL HEMATOMA

REPORT OF CASE

Case 3. A man aged 45 years was admitted to the hospital with a view to commitment to a state hospital as insane. In the last few weeks he had undergone a change in personality in the direction of dullness, irri-

tability, difficulty in thinking, poor judgment and depression. Headache was present but not stressed.

The routine examination showed slight swelling of the optic disks, increased tendon reflexes and a Babinski sign on the left side. Spinal fluid was under slight increased pressure. Encephalogram showed displacement of ventricles to the left. A large subdural hematoma was removed at operation with complete recovery.

Review of history after the diagnosis was made brought out that four months before, the patient had arisen briskly from a stooping posture and struck the right side of his head on a faucet. He was dazed for a few seconds and had a severe headache for several days.

Cases of this type often present themselves as psychoses. Their true nature is occasionally overlooked and though curable by operation the patients may pass their lives in state institutions.

TRAUMATIC PSYCHOSIS

The subject of traumatic psychosis was first stated clearly by Meyer in 1904. He emphasized the post-traumatic constitution and traumatic defect conditions, both of which are based upon degenerative changes in the brain following trauma.

Special forms of traumatic psychosis are the cases of "punch drunk" described by Martland which are due to repeated brain concussions sustained by professional boxers. Martland states that Gene Tunney retired from the prize ring after a period of two days' amnesia following a blow on the head. He feared that a repetition of the experience would damage his brain permanently.

Another special but rare type is the traumatic encephalitis described by Osnato which is due to the production of numberless minute hemorrhages throughout the brain substance.

Since the post-traumatic constitution is more or less reminiscent of psychoneurotic states, there has always been a large class of cases in which the diagnosis was indeterminate owing to the difficulty of demonstrating actual brain injury.

The gradual accumulation of cases studied histologically, the use of the encephalogram and improved criteria in interpreting roentgenographic evidence has justified diagnosis of traumatic psychosis in a much larger proportion of cases than formerly.

REPORT OF CASE

Case 4. A man working in a deep excavation was struck on the head by a stone about 18 inches in diameter, falling twenty feet. There was roentgen ray and clinical evidence of fracture of the vault and base, subarachnoid bleeding, unilateral deafness, right hemiplegia. After a period of shock there was a stage of excitement and delirium lasting ten days, followed by rather rapid physical recovery. Mentally there was amnesia for the three months previous to injury, restlessness, excitability, a tendency to senseless laughing and to playing crude practical jokes, violent outbursts of temper and an inability to read any but the simplest material, to make change and to do even simple calculations. There was no headache or discomfort of any kind. In three years the condition was unchanged.

Kennedy has suggested points which if present would indicate that an injury sufficient to produce

organic changes in the brain has been received. These are roentgen evidence of skull fracture: bloody spinal fluid; bleeding from orifices, especially ears, and focal cerebral palsies. Presumptive criteria of secondary importance are: convulsive states proved to be post-traumatic; ventricular distortion proved to be post-traumatic; history of prolonged unconsciousness; history of adequate trauma with special consideration of the occurrence of vomiting after the injury.

PSYCHONEUROSES

The large proportion of psychoneuroses in the series—sixty-four out of seventy-five—probably depends upon the manner of selection. The cases were mostly under litigation and there is naturally a preponderance of questionable cases. Most of the obviously traumatic cases would be settled out of court. These cases had the following characteristics:

1. A history of head injury with a short period of daze or unconsciousness, and absence of any prolonged secondary excitement or delirium, no clinical evidence of increased intracranial pressure and no focal paralysis.

2. General symptoms were headache of shifting location, dizziness without evidence of vestibular damage, increased sensitiveness to stimuli with irritability, depression or anxiety.

3. The majority reported sensory disturbances of hysterical type, the most frequent of which were corneal anesthesia, glove and stocking type of sensory defect, often hemiplegic.

4. Many gave histories of having always been "nervous." In some it was possible to infer that the illness was a solution to some problem in the patient's life. Some of these were: fear of losing job because of age; resentment against employer because of supposed unjust discrimination; dislike of job and weariness of a boring routine; fear of loss of affection of wife; despondency and loss of ambition due to quarrelsome wife.

5. A considerable number were affected strongly by suggestion. In some, symptoms developed after contact with an attorney. In other cases careless remarks by a physician marked the starting point. Several were much impressed by the statement: "You were lucky not to have been killed." The phrases "broken neck," "broken back" and "skull fracture" recurred time and again in such a way as to show that they had profoundly affected the patient's imagination. Often the suggestion of severe after-effects came from reports of other men who had been similarly injured. Some were affected by fear from foreseeing injury but being unable to escape it.

CONCLUSION

In any group of cases of head injury there will be a certain proportion in which the after-effects are unmistakably results of injury to the brain. There will be a much larger group in which the brain

injury is slight or transitory and the effects clearly of a psychological nature.

Doubtful cases need not only careful examinations by encephalogram and neurological analysis, but also a study of the personality, of the emotional tensions of the patient's present life and a history of how he has adapted himself to difficult situations in the past.

In a surprisingly large number, thoughtless remarks by friends, nurse or physician have seemed to play a considerable part in the genesis of psychoneurotic states.

Routine treatment has no place in head injuries. Each case needs to be watched with great care. The application of dehydrating treatment at the proper time or in rare cases of decompression may save life or prevent psychosis.

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ACUTE RETROCECAL APPENDICITIS

A CLINICAL SIGN OF DIAGNOSTIC VALUE

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The diagnosis of acute appendicitis is at times most confusing. Particularly is this true in cases of retrocecal appendicitis. In this group of cases the terminal ileum and cecum often mask the usual signs of inflammation until late.

There is no question but that tenderness in the lower right quadrant, usually about McBurney's point, is the one most convincing sign of appendicitis. It follows that the clinician is influenced somewhat by the degree of tenderness manifested.

Many ruses have been advocated to eliminate the voluntary reaction of patients to pain during examination. The evaluation of any patient in response to painful stimuli remains difficult, however.

The test herewith presented consists briefly in the palpation of the abdomen with the patient face down. The increased tenderness elicited by examination with the patient in the prone position is revealed in the following brief history:

CASE REPORT

White female, aged 9, entered the hospital with the following chief complaints: (1) pain over the upper and lower right side of the abdomen, (2) pain over the right lumbar region, (3) nausea and vomiting, (4) occasional burning and frequency of urination.

Her past history was thought to be irrelevant.

Her present illness preceded her entrance to the hospital twenty-four hours with the sequence of symptoms as given. There was no diarrhea. There had been no sore throat, "cold" and there had been no dietary indiscretions.

Her temperature was 103 F. and the pulse rate was 110.

The white blood count was 21,000 with 86 per cent polymorphonuclear cells present. The catheterized urine reveals clumps of pus cells, a few red blood cells and a trace of albumin; otherwise nothing noteworthy.

Physical examination gave normal findings except for the abdomen.

There was diffuse tenderness of the upper and lower quadrants of the abdomen. There was no rigidity of the muscles. The psoas, obturator, Rovsing's and rebound tenderness signs and tests were negative.

There was exquisite tenderness in the right costo-vertebral angle with questionable muscle spasm.

When the child was placed in the prone position, the gentlest palpation over the lower right quadrant caused sufficient pain to make the child cry. The lumbar tenderness seemed lessened.

Due to the positiveness of the prone test an immediate appendectomy was done.

At operation a gangrenous appendix was removed which was located retroceally, ascending along the lateral aspect of the cecum almost to the liver.

An uncomplicated recovery followed and the urine cleared up before dismissal from the hospital.

Other cases which have demonstrated the value of this test in making a differential diagnosis between acute retrocecal appendicitis and gynecological conditions will be omitted for the sake of brevity.

SUMMARY

Examination with the patient in the prone position for acute retrocecal appendicitis is suggested in the literature for the first time, we believe. It is hoped that it will be employed more commonly and will be of value to others.

Many criticisms, objections and unanswerable questions can be raised, but it is probable that there never will be one sign which will be pathognomonic in 100 per cent of these cases.

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Primary tuberculosis of the uterine cervix is rare but it does exist and in its appearance often resembles cancer of this organ, Donald C. Collins, M.D., Los Angeles, states in *The Journal of the American Medical Association* for Feb. 18.

This resemblance is unfortunate, the author says, because many patients with tuberculosis of the cervix can be restored to full health. Inoculation of guinea pigs with material obtained from the infected cervix may prove to be the only reliable method of diagnosing the condition.

Marriage and pregnancy are the two common factors that contribute to the possibility of this infection.

The treatment of the ailment consists of the removal of the cervix. The contraindications to surgical intervention are advanced local tuberculous lesions with extensive involvement of the neighboring bladder or rectum, extensive tuberculosis of the fallopian tubes, secondary infection, the presence of active tuberculosis elsewhere in the body, diseases of the heart and blood vessels and senility. The ultimate outcome of this disease is dependent on the type of treatment employed and on whether active tuberculosis is present elsewhere in the body.

Dead fat tissue in the breast is definitely significant as it may be mistaken for cancerous tissue, says an editorial in *The Journal of the American Medical Association* for Feb. 18.

Two cases are cited in which a breast, believed to be cancerous, was removed mistakenly.

SPECIAL ARTICLE

FACTORS INFLUENCING THE BIRTH RATE AND MATERNAL AND INFANT MORTALITY RATES IN MISSOURI

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Any study of the birth rate and maternal and infant mortality rates in their broadest aspects obviously cannot be treated properly in a short paper. Therefore a certain few factors such as population shifts, density of population and the economic status of certain groups which influence local birth rates and also maternal and infant mortality rates which in turn affect the state rate will be discussed. Nothing new is presented but it is hoped that mention of these few factors may present the subject in a slightly different light.

Possibly a clearer understanding of the situation may be had by considering a few population problems which Missouri has in common with many states having large rural populations, much marginal land and large industrial centers. The shifting of people between rural areas and industrial centers does have a bearing on mortality rates, particularly on the maternal and infant mortality rates.

Any individual or any group of individuals planning for the future of society is compelled to consider certain population problems. A great deal is said now of subsistence homesteads, the development of backward regions, revival of village industries and of the relatively high rates of reproduction in the low income and relief groups. Here are involved broad problems of social welfare as well as the problems of health including maternal and infant health, all concerned with population and population shifts. Certain population trends have occurred in the United States which have influenced the population in the State of Missouri.

The population policies of the United States have come into being largely as reactions to the immediate problems of the time rather than from any long range planning and as such they have been in the main poorly defined and constantly shifting.

In the early history of our country when there was a great demand for settlers to occupy our immense tillable areas, for laborers to build our railroads and canals and to help with our industrial expansion, we adopted the open door policy of immigration. With this sudden influx of new people came situations and attitudes that were conducive to early marriage and large families. With the Chinese Exclusion Act of 1882 the restriction of immigration began which has culminated in our present quota laws.

The early homesteading policy stimulated an early settlement of the West but from that time

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until recently no attention was paid to the distribution of population and it was allowed to take its course. Lately concern has been felt over the situation as evidenced by such projects as the Tennessee Valley Authority, subsistence homesteads, reclamation and the general interest in regional planning. In regard to the differences in the fertility of constituent elements of our population we have developed no policy nor has it been studied to any extent. We know that economic and social factors associated with modern life have conspired to reduce to below replacement needs the births among urban "white collar" workers and among certain groups of rural dwellers. On the other hand, our present policies against birth control may have served to perpetuate large families among the low income groups.

Professor Raymond Pearl, the eminent biometrist, has stated that the phenomenon of differences in fertility of economic and social classes appears on the evidence to be as ancient as human history and the attitudes of those who have discussed it have altered little on certain phases of it since recorded history, i. e., too little reproduction by the "upper" classes and too much by the "lower" classes.

Social and economic class variation of fertility is brought about chiefly by environmental causes, direct and indirect. Of the direct causes, birth control and criminal abortion are probably the most important, and of the primary indirect factors, economic conditions are easily the most important secondary factors such as postponement of marriage. Density of population is also important. Before the depression of 1929 there was a decided movement of people away from rural areas and toward urban areas; it was particularly evident among the Negroes of the South. This movement was toward areas which at the time seemed more favorable but left them, when the depression came, in places which proved to be most vulnerable.

All the problems of population mentioned so far including interstate migration and differential fertility are present in Missouri and all have had an effect on maternal and infant mortality rates.

Viewed over a period of years the birth rate in the United States, and in Missouri as well, is definitely on the decline. Since 1900 every age group under 30 years of age has been decreasing in the country at large and in Missouri, while every age group over 30 has been increasing. This means, of course, that in the future we may expect fewer persons of marriageable age and consequently fewer offspring.

The population of both the nation and of Missouri is increasing, to be sure, but in about twenty years or around 1960 we may expect the population of the nation and of the state to reach the maximum and thereafter to decline.

The birth rate in rural areas in Missouri has not declined to the extent that it has in urban areas

despite the fact that there exists in rural areas an unfavorable balance of males. However, this is offset by the fact that rural women marry earlier, more of them remain married and when widowed remarry more often than do women in urban areas. For every divorce in rural districts there are four divorces in urban districts.

In spite of the more favorable birth rate certain sections of rural Missouri are losing population. Rural population reached its peak in 1900 but has been declining since that time. In 1900 the rural school population in round numbers was 1,000,000; in 1930 it was 923,000.

Another element in the population that reflects the declining birth rate is the preschool child. To maintain a stationary school population the group under 1 year of age must remain 72 per cent of the total number of the group under 5 years.

In 1930 on this basis there was a shortage of 162,158 infants in the group under 1 year and there is no reason to believe that the situation has been improved in the last nine years.

The rural population is in an unfavorable position in the matter of support of nonproductive elements in the population because in the rural areas there is a larger ratio of very young and very old to the ratio of productive age groups than there is in urban areas. There is a steady shift of young adults from rural areas to urban areas.

Missouri is losing population in interstate migration and the loss is almost entirely white and from rural areas. The greater part of this loss is to states west of Missouri. Cities in Missouri are growing and are draining population from the rural areas of this state and from states to the south and the latter addition is mostly Negroes.

To arrive at a proper understanding of the significance of maternal and infant mortality figures one must examine certain problems in population. We reviewed briefly the population trends in the United States as a whole and then we sought factors in Missouri's population shifts which might affect the birth rate and the maternal and mortality rates since population trends have an underlying economic basis. Populations tend to shift from the less favorable to the more favorable areas and this has a definite bearing on mortality rates, particularly maternal and infant mortality rates. We found that rural populations on the whole maintain a higher birth rate than do urban populations; that the rural population, however, was declining because of a constant loss of young adults to cities in the state and to other states through interstate migration; that this latter situation placed the rural areas in an unfavorable economic position because it decreased the number of persons in the productive group.

These situations have had definite influences.

The shift of young adults away from rural areas resulted in many of Missouri's best agricultural counties showing an actual preponderance of deaths

over births in 1934. Among these counties are Montgomery, Callaway, Clay, Jackson, Marion and Randolph.

The shift in population toward urban and certain rural areas such as Southeast Missouri has resulted in a density of population in these areas that has caused a greater struggle for existence, lowered standards of living and increased maternal and infant mortality rates since poverty and an insecure economic situation are always the greatest factors in mortality rates.

In any discussion of maternal and infant mortality rates in Missouri another important factor must be mentioned, i. e., the scarcity of qualified physicians in rural Missouri. The average age of physicians in rural Missouri is 59.7 years. As these physicians retire or die they are not being replaced to any proper extent by younger physicians. This makes it increasingly difficult for people in the low income groups to obtain adequate medical care. To my mind this is a serious situation and one that must be studied by those willing to take the responsibility of planning for the social welfare of the people of the state.

In 1937 the maternal mortality rate was 5.13 while in 1918 it was 5.58, certainly no great improvement in twenty years. The 1937 urban maternal mortality rate was 6.97 and the rural maternal mortality rate was 3.64 but it is safe to say that these figures are biased in favor of the rural areas since the deaths were reported as of place of occurrence and many of these mothers were sent from rural areas into urban hospitals when it was seen that their condition was serious.

The influence of the economic status of the mother and of the density of population on the maternal mortality rate is illustrated by a comparison of the maternal mortality rates of two South Missouri counties with large proportions of low income groups in their population with rates of 12.99 (Phelps) and 8.31 (Pemiscot) with the rates of two North Missouri counties with few in the low income groups and with no maternal deaths at all (Atchison and Knox). It might be interesting to compare birth rates of the same counties: Phelps, 24.57; Pemiscot, 17.57; Atchison, 12.49, and Knox, 10.77.

Illustrating the effect of density of population on the maternal mortality rates Kansas City has a rate of 5.95; St. Louis, 4.00; St. Joseph, 14.81; Springfield, 14.60; Moberly, 17.34, and Joplin, 16.08.

The infant mortality rate for the state at large in 1937 was 64.01. The infant mortality rate unlike the maternal mortality rate is higher in the rural areas (66.66) than in urban areas (60.75). This is a matter of concern and is one reason why the State Board of Health concentrates its efforts on rural areas.

Again comparing two Southeast Missouri counties with a large element of low income groups and a dense population with two North Missouri counties with few elements of low income groups and

less dense populations there is an infant mortality rate for the southern counties of 133.76 (New Madrid), 124.70 (Pemiscot) as against 18.69 (DeKalb) and 19.23 (Knox). Again low income, economic insecurity and density of population are seen to be potent factors in maternal and infant mortality rates.

In cities the infant mortality rates were as follows: Kansas City, 56.50; St. Louis, 59.01; St. Joseph, 73.25; Springfield, 68.73; Sedalia, 46.51, and Joplin, 99.68.

Both the maternal mortality rate, 5.13, and the infant mortality rate, 64.01, are above the average of the country at large with rates of 4.9 and 54.4 respectively. Of course, figures, particularly vital statistics, are often askew and I might mention one instance which will demonstrate this. In a prosperous agricultural county in Central North Missouri the infant mortality rate was noticed to be 89.89 which seemed to be entirely too high considering the economic status of the people as a whole. Upon examination it was found that in 1934 seventeen births of Negroes were recorded with five infant deaths which gave a Negro infant death rate of 294 that would certainly give a biased result when combined with the white infant death rate. Another county in North Missouri had one Negro birth and one infant death which gave a mortality rate of 1000 which results in another biased figure.

However, we cannot escape the fact that we have an unfavorable situation in Missouri in the matter of maternal and infant mortality and we shall continue to have it until we can set up machinery which will improve the conditions of the groups that are responsible largely for these high rates, the low income groups living in densely populated areas, and the groups in sparsely populated areas and without adequate medical care.

State Board of Health.

H. J. Burt: *The Population of Missouri*. Research Bulletin 188, University of Missouri, College of Agriculture. Problems of a Changing Population, National Resources Committee, May, 1938.

The Milbank Memorial Fund Quarterly Report 15: (April) 1937.

The Division of Vital Statistics, Missouri State Health Department.

PARENTAL NEGLECT IS RESPONSIBLE FOR MUCH LUNG INFECTION

The prevention of bronchiectasis (dilatation of the bronchi) has been sadly neglected, due to parental negligence of chronic upper respiratory infection and chronic bronchitis in children, *The Journal of the American Medical Association* for Feb. 18 points out editorially.

The editorial emphasizes "the danger of slow and continuous flow of infected material into the bronchial passages in the production of bronchitis.

"As the growing recognition of the role assumed by chronic sinusitis in this disease increases," it continues, "the occurrence of bronchiectasis should decrease.

"From a climatic point of view bronchitis of minor degree is favorably influenced by that atmospheric dryness which is beneficial for sinusitis. However, it seems that a permanent change of residence in most instances alone can yield lasting results."

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MARCH, 1939

EDITORIALS

MATERNAL CARE: TOPIC OF THE MONTH

"Maternal Care" was chosen by the Postgraduate Correlating Committee as the topic of the month for March and articles concerning various phases of maternal care and a symposium on "Complications of Pregnancy" appear in this issue of THE JOURNAL. "Cancer" will be the topic of the month for April and "Mental Health" for May.

THE EXCELSIOR SPRINGS SESSION

The Eighty-Second Annual Session of the Missouri State Medical Association will convene in Excelsior Springs on April 10, 11 and 12. The time of the session was advanced approximately a month from the usual time because of the meeting of the American Medical Association in St. Louis May 15 to 19.

All sessions will be held in the Elms Hotel. The House of Delegates will meet on Monday morning and reconvene at 4 o'clock on Monday afternoon. The final session of the House will be held at 4 o'clock on Wednesday. The Council will convene at a luncheon meeting on Monday and at 5 o'clock on Wednesday.

The Committee on Maternal Welfare will hold its annual dinner meeting on Monday evening at which time physicians will report problems that have arisen in their practice during the year. Dr. J. C. Litzenberg, Minneapolis, Professor of Obstetrics and Gynecology at the University of Minnesota Medical School and Graduate School, will discuss the cases presented.

A number of guest speakers, chosen because of their ability to present material of practical value to the practitioner, will deliver addresses at the session. In addition to Dr. Litzenberg the guests will be Dr. Sumner L. Koch, Chicago, Associate Professor of Surgery, Northwestern University Medical School; Dr. William Malamud, Iowa City, Professor of Psychiatry, State University of Iowa College of Medicine; Dr. Walter M. Whitaker, Quincy, Illinois, Pediatrician; Dr. B. R. Kirklin, Rochester, Associate Professor of Radiology, Uni-

versity of Minnesota Graduate School of Medicine; Dr. I. Mims Gage, New Orleans, Associate Professor of Surgery, Tulane University of Louisiana School of Medicine; Dr. Warren H. Cole, Chicago, Professor of Surgery, University of Illinois College of Medicine; Dr. Fred M. Smith, Iowa City, Professor of Theory and Practice of Medicine, State University of Iowa College of Medicine; Dr. A. W. Adson, Rochester, Professor of Neurosurgery, University of Minnesota Graduate School of Medicine.

A round table discussion on "Abdominal Injuries" will be held Tuesday noon, conducted by Dr. I. Mims Gage, New Orleans, and one on pediatrics will be conducted by Dr. Walter M. Whitaker, Quincy, Wednesday noon.

The General Committee on Arrangements for the Annual Session is composed of Dr. A. S. Bristow, Princeton, Chairman; Dr. E. P. Heller, Kansas City, and Dr. A. J. Campbell, Sedalia. The local committees follow:

Local Committee on Arrangements: Dr. David E. Musgrave, Excelsior Springs, Chairman; Drs. J. E. Baird, E. B. Robichaux, E. C. Robichaux, and John E. Kelly,* Excelsior Springs; Dr. Burton Maltby, Liberty; Dr. Russell C. Porter, North Kansas City, and Dr. A. E. Spelman, Smithville.

Reception and Transportation: Dr. John F. Grace, Excelsior Springs, Chairman; Drs. H. J. Clark, L. V. Dawson, A. N. J. Dolan and R. W. Prather, Excelsior Springs, and Dr. W. H. Goodson, Liberty.

Hotels: Dr. E. B. Robichaux, Excelsior Springs, Chairman; Drs. Y. D. Craven and S. R. McCracken, Excelsior Springs; Dr. C. I. Fowler, North Kansas City, and Dr. W. L. Wysong, Liberty.

Publicity: Dr. J. E. Baird, Excelsior Springs, Chairman; Drs. David E. Musgrave, S. R. McCracken and E. C. Robichaux, Excelsior Springs; Dr. A. E. Spelman, Smithville, and Dr. F. H. Matthews, Liberty.

Registration: Dr. Burton Maltby, Liberty, Chairman; Drs. S. R. McCracken and L. V. Dawson, Excelsior Springs; Drs. R. E. Sevier and G. W. Hendren, Liberty.

Entertainment and Finance: Dr. E. C. Robichaux, Excelsior Springs, Chairman; Dr. Nelson Schuhmacher, Liberty; Drs. S. R. McCracken, E. V. Edwards,* H. E. Downs,* H. R. Pear,* E. K. Moore* and Franklin Ruegsegger,* Excelsior Springs. Dr. James Navin,* Excelsior Springs, is chairman of a subcommittee on golf, Dr. David E. Musgrave being the other member. A golf tournament is being planned for Sunday, April 9, preceding the session.

BILLS IN LEGISLATURE

Senate Bill No. 29, introduced by Senator McCormick, Webster Groves, providing for a State Board of Examiners in the Basic Sciences is sponsored by the Missouri State Medical Association. The text of the bill was published in the January

*On the staff of the Veterans' Hospital, Veterans' Administration Facility.

issue of *THE JOURNAL*. This bill has been referred to the Senate Committee on Public Health.

Senate Bill No. 5, introduced by Senators McCormick, Webster Groves, and Kinney, St. Louis, proposes, as a condition precedent to the issuance of a license to marry, that both parties to the proposed marriage present certificates from licensed physicians that they are free from all venereal diseases as nearly as can be determined by a thorough physical examination. Those certificates must be accompanied by "laboratory reports of microscopic examination for the gonococcus for gonorrhea, and the blood Wassermann test or the Kahn test for syphilis, or such other serological tests as shall be approved by the State Board of Health." This bill has been referred to the Committee on Public Health.

Senate Bill No. 22, introduced by Senator Kinney, St. Louis, proposes to grant to government hospitals and hospitals supported in whole or in part by charity, treating persons injured through negligence of others, liens on all claims, demands, rights of action, judgments or settlements accruing to the injured persons because of their injuries.

House Bill No. 39 introduced by Representative Edwards, Mexico, proposes, as a condition precedent to the issuance of a license to marry, that both parties to the proposed marriage present certificates signed either by licensed physicians or by directors of laboratories approved by the State Board of Health that both parties are free from all venereal disease. Apparently such a certificate cannot be executed until a blood test has been made on the applicant's "venous blood serum" not more than fifteen days before the application in a laboratory acceptable to the State Board of Health. A license to marry may be issued even though a blood test was positive if a licensed physician will certify that in his opinion any venereal disease, if present, is not in a communicable stage. The Committee on Public Health recommended that this bill do not pass.

Senate Bill No. 68, introduced by Senator Dail, Linn, provides:

"Section 1. That any association or corporation now or hereafter operating a hospital and employing or maintaining a medical staff or corps of physicians and surgeons, including osteopaths and dentists, consisting of two or more such practitioners, may furnish or supply the services of one or more such physicians, surgeons, osteopaths or dentists, to and for the benefit of any patient in, or person patronizing, such hospitals.

"Section 2. The furnishing to any person or patient while in such hospital, or attendance on such person or patient therein, of any of the practitioners specified in the preceding section, shall not constitute the corporate practice of medicine by any such hospital.

"Section 3. Because of the necessity of revising the statutes relating to hospital associations or corporations, this act in expressly declared to be a

Revision Bill." This bill was referred to the Committee on Public Health February 10.

House Bill No. 111, introduced by Representative Still, Kirksville, amends Section 13514 Revised Statutes of Missouri, 1919, relating to osteopathy by striking out the words "as taught and practiced by the American School of Osteopathy, Kirksville, Missouri" and inserts in lieu thereof the words "as heretofore or hereafter taught and practiced by colleges of osteopathy recognized and approved by the Missouri State Board of Osteopathic Registration and Examination," so that when amended the section would read:

"Section 13514. The system, method or science of treating diseases of the human body, commonly known as osteopathy, and as heretofore or hereafter taught and practiced by colleges of osteopathy recognized and approved by the Missouri State Board of Osteopathic Registration and Examination, is hereby declared not to be the practice of medicine and surgery within the meaning of Article I of Chapter 53, and not subject to the provisions of said article."

This bill has been referred to the Committee on Public Health.

House Bill No. 152, introduced by Representative Still, Kirksville, reads as follows:

"Section 1. Hereafter in the administration of any public health project within the State of Missouri, whether same be conducted with state funds, or with funds furnished by the United States Government to be expended within the State of Missouri, by any State of Missouri agency, all doctors of medicine and doctors of osteopathy shall be accorded equal rights and privileges.

"Section 2. The Sixtieth General Assembly hereby determines this bill to be a revision bill within the terms and meaning of the Constitution."

This bill has been referred to the Committee on Public Health.

House Bill No. 182, introduced by Representative Hayden, Kansas City, reads as follows:

"Section 1. It shall be unlawful for any person, persons, partnership, firm or corporation to sell, offer to sell, prescribe or fit any hearing aid device directly or indirectly to any person or persons unless such hearing aid device shall be sold and fitted in accordance with a written prescription prescribed by a duly licensed physician or surgeon.

"Section 2. Any person, persons, partnership, firm or corporation violating the provisions of this act shall be guilty of a misdemeanor."

This bill has been referred to the Committee on Criminal Jurisprudence.

SPRING MEDICO-MILITARY SYMPOSIUM

The Kansas City Southwest Clinical Society will hold its annual Spring Medico-Military Symposium in Kansas City on March 13 to 14 in the auditorium of the Jackson County Medical Society in the Municipal Hospital. This meeting, which is open

to all physicians, will be an intensive two day course in practical medicine, both diagnostic and therapeutic.

Guest speakers will include Dr. Cyrus C. Sturgis, Ann Arbor, Professor of Internal Medicine, University of Michigan Medical School; Major General C. R. Reynolds, Washington, D. C., Surgeon General of the United States Army, and Dr. Sumner L. Koch, Chicago, Associate Professor of Surgery, Northwestern University Medical School. Guests and Kansas City physicians will present papers during the two day session. Major General Reynolds will deliver an address at the Municipal Auditorium on the first evening.

The Kansas City Academy of Medicine will convene on March 14 for a dinner meeting at the Muehlebach Hotel to which all physicians attending the conference are invited. Dr. Harry Pratt Smith, Iowa City, Professor of Pathology, State University of Iowa College of Medicine, will speak on "Recent Progress in the Study of Hemorrhage" at this meeting.

There is no registration fee for the session. Members of the Army and Navy reserve corps will receive credit for attending the session. Luncheons will be served complimentary to registrants by the Municipal General Hospital.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

An American Congress on Obstetrics and Gynecology will be held in Cleveland, September 11 to 15, 1939. The Congress was proposed by the Central Association of Obstetrics and Gynecologists for the purpose of studying the present day problems in obstetrics and gynecology and working toward a solution of these problems. National, sectional and local societies of obstetrics and gynecology passed resolutions approving the Congress and representatives of these societies petitioned The American Committee on Maternal Welfare, Inc., to sponsor the session. This committee accepted the responsibility and the organization and the program are progressing rapidly.

Contributing organizations to the Congress are the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; American College of Surgeons; American Gynecological Society; Central Association of Obstetricians and Gynecologists; Chicago Gynecological Society; Minnesota Obstetrical and Gynecological Society; New England Obstetrical and Gynecological Society; New Orleans Gynecological and Obstetrical Society; New York Obstetrical Society; Philadelphia Obstetrical Society; Pittsburgh Obstetrical and Gynecological Society; Texas Association of Gynecologists and Obstetricians, and the Obstetrical Society of Boston.

The program is planned to present present day medical, nursing and health problems from scientific, practical, educational and economic view-

points so far as they relate to human reproduction and maternal and neonatal care. The programs and exhibits will be presented in a way to be of value not only to the medical profession but to nurses and all persons and agencies concerned with the problems of human reproduction and maternal and neonatal care as well as to lay groups. The Congress will be in no way a legislative body but will restrict its work to scientific presentations with a view to a better understanding among professional groups of the problems involved in maternal and child welfare and to a better understanding and coordination of effort among the groups participating in the Congress.

The groups who will take part in the Congress are (1) medical, general practitioners, specialists and educators; (2) nursing, institutional supervisors, general and private duty nurses, educators and public health; (3) public health, administrators and field workers; (4) institutional administrative, hospital, outpatient and educational.

The mornings during the session will be devoted to special programs for each organization group and subgroups; round table discussions will be held each noon; general sessions of interest to all members attending the meeting will take up the afternoons, and speakers of national prominence will address the entire membership each evening.

Dr. Fred L. Adair, Chicago, is general chairman of the Congress. Dr. Buford G. Hamilton, Kansas City, is secretary of the committee on membership; Dr. William Vogt, St. Louis, is regional chairman for Missouri, Iowa and Kansas, and the Rev. Alphonse M. Schwittalla, St. Louis, is chairman of the institutional administrative subcommittee.

REPORT OF THE SURGEON GENERAL OF THE U. S. P. H. S.

Concepts of the obligation of government regarding the health of the citizens have undergone rapid expansion in the last twenty-five years. The primary duty of the Service in its early days was to inspect persons arriving in this country for the possible existence of communicable diseases. However, the Service now and then aided in the investigation of outbreaks of epidemic disease in various parts of the country and contributed materially to the conquest of certain of the infectious diseases.

Coincident with the expansion of all government activity the United States Public Health Service has widened its activities. Imposition of quarantine restrictions is now only a minor function of the Service. Indeed the last report¹ of the Surgeon General covers a multitude of functions which could not have been dreamed of by the founders of the Service. The report is a well-planned, far-seeing document which takes thorough cognizance of the health needs of the modern nation.

In referring to the Social Security Act, the Vene-

1. Annual Report of the Surgeon General of the Public Health Service of the United States, Government Printing Office, Washington, 1938.

real Disease Control Act and the National Cancer Institute Act, Surgeon General Parran writes, "... undoubtedly a greater advance has been made in public health in the United States in the last two years than ever before within a comparable period." It is not our purpose to review the entire nature of these advances but only some of the performances of this expanding arm of the government.

The ultimate purpose of the Service is aptly summarized by the Surgeon General as follows: "It has long been felt that the wider and more effective application of preventive measures already known would probably result in as great an improvement in health and saving of life as the discovery of a cure for one of the chronic diseases of the adult ages; and . . . properly qualified personnel are being developed under the Social Security Act as one of the means of achieving this important advance." It is timely to review the nature of the investigations made by this Service.

Contagious disease, in the larger sense, consumes but a portion of its time. True, there have been studies of Weil's disease, which is becoming increasingly prevalent in this country, of leprosy and of Rocky Mountain spotted fever, but there have been investigations of rheumatic heart disease and of the toxicology of lead arsenate. Large groups of children have been examined to determine the incidence of dental caries. Methods to control the purity of biologic products have been improved. A method for mosquito control by means of dusting poisons by airplane has been worked out and a National Cancer Institute supported by federal funds has been opened.

The Service immunized eleven thousand children against scarlet fever and found that the incidence of the disease in this group was one tenth of that in a control group. It found that rheumatic heart disease caused more deaths in persons under the age of 20 years than did whooping cough, measles, meningococcus meningitis, diphtheria, scarlet fever and poliomyelitis combined. It found that while the incidence of poliomyelitis has decreased somewhat it now attacks adults more commonly than heretofore. It found that the United States is in the unenviable position of having a higher incidence of smallpox than any country in the world except India.

The Service has extended its participation in the public health program of the various states, not alone through consultative advice but through grants of large sums of money. The people of Missouri benefited to the extent of \$210,000 in 1938. These funds were expended on the control of venereal disease, on the present pneumonia study and for various other activities. A nutritionist, under the general supervision of the Service, has been employed jointly by nineteen states to spread knowledge of nutrition where it will do the most good. Unfortunately the Surgeon General does not indicate how the benefits of nutritional knowledge may be garnered by persons existing on limited

incomes even though the information provided them be of the best.

One of the amazing findings of this enlarged Public Health Service is that the Mantoux test is not, at least under the conditions employed for the test, a reliable indicator of the existence of tuberculous infection. The test revealed about as many false positives, gaged by roentgenologic examinations, as false negatives in persons who showed indisputable evidence of infection in lung films. Unrecognized factors of natural resistance were revealed to be operative in determining the incidence of damaging tuberculosis. In a county with relatively good economic and dietary conditions 50 per cent of the children showed calcified parenchymal lesions as against only 1 per cent in a county having decidedly lower living standards. As a possible explanation of this difference in morbidity it is pointed out that the children in the latter county had considerably more daylight, especially in winter, and consumed vegetables with a lower calcium and phosphorus and a higher iron and sulfur content than did the children in the former county.

Under supervision of the Service the Works Progress Administration has installed 32,000 privies each month for nearly five years. During 1938 only 424 were built in Missouri but all of them were of concrete as contrasted to the 32,000 installed in Maryland of which only two thirds were of concrete construction. The Service trapped over 60,000 rats on the Island of Maui and the San Francisco laboratory alone examined more than 40,000 rats for plague.

In cooperation with the Service the various state health authorities examined more than 2000 semi-public water supplies used by interstate carriers. The tremendous importance of such supervision in this period of changing modes is illustrated by the fact that at least fifty-two cases of typhoid fever and six deaths occurring in several states could be traced to the consumption of polluted water by bus passengers at an eating place in Indiana. To improve the quality of drinking water the Service has sealed the shafts of abandoned coal mines in order to prevent the formation of sulfuric acid and subsequent contamination arising from seepage of ground water.

Dr. Parran urges the extension of the present program of the Public Health Service under the Social Security Act. He recommends an expansion of the present preventive program with special reference to tuberculosis, syphilis, cancer, pneumonia, malaria, mental health and industrial hygiene. The duties of the Office of Health Education have been enlarged considerably. Special attention has been directed toward the preparation of educational material in the field of health and the nontechnical publications of the Service have been revised so that they may be understood by the layman.

From the viewpoint of national welfare it must be conceded that the activities of the Public Health Service have contributed to an improved status of

the nation. In cooperation with all the other agencies in disease control and therapy, including the private practitioner, the Service has materially enhanced the national well-being as manifested in morbidity and mortality reports. Its accomplishments to the present time merit the support and approval of the individual practitioner, of organized medicine and of the public at large.

THE BEGINNING OF MENTAL DISEASE

Physicians and public health workers the country over have repeatedly expressed alarm at the mounting incidence of mental illness. They have called attention to the increasing demand for hospital facilities for this disease. It is unfortunate that the psychoses demand prolonged and expensive institutional care. Although the incidence¹ of such disease is not as great as the alarmists would have it appear, much effort has been directed toward the prevention as well as toward the early recognition of these illnesses.

It is generally agreed that the manifestations of mental illness arise long before the need for treatment is evident. Often mental illness begins in the home before the child has reached the age at which he may rationalize his handicap. It has been pointed out repeatedly that persons in the public school systems are in position to and frequently do recognize evidence of potential mental disease.

These manifestations are expressed primarily as asocial more often than unsocial acts. Undue resentment of the authority of the teacher, inability or unwillingness to participate in the activities of the class, refusal to abide by the reasonable rules of the school may be the first evidence that there is something amiss in the psychomotor mechanism of the child. The motivation for the attitude may not be readily apparent; the emotional appeal made by especially skillful teachers may temporarily overcome the asocial proclivities of the individual child. But with promotion and a change of teachers the problem once more proclaims itself.

The chief interest of society in incarcerating the psychotic patient lies in the desire for protection from his unsocial activities. The child who is merely asocial in youth may become unsocial as he fails to achieve the social satisfaction which he craves. Instead of mere resentment he rebels openly. Instead of mere unwillingness, simple nonacquiescence, there may be positive acts calculated to demonstrate the perverseness of the little rebel. In any event the child, rapidly becoming unsocial, utilizes any means to attract attention to himself and seeks vicariously for the thrill of accomplishment which failure to participate in class exercises denies him. Whether the overt expression of these unsocial proclivities is somatic or extrasomatic is unimportant.

The important fact is that the school and the

agencies with which it cooperates are prepared to recognize many of these candidates for emotional disintegration. At the present time less is being done about it than might be and more might be done if adequate facilities were at hand.

Often it is to the best interest of the child and society to remove him temporarily from his home while he is being reeducated to understand his position in and obligation to society. However, at present, short of condemning him to a correctional institution there is no place to which he may be sent. Therefore it might prove helpful to divert some of the funds now directed to the provision for institutions for the treatment of adult psychotic patients. Such funds might be used for the construction of small, resident public schools to which children could be transferred for temporary treatment with the consent of their parents. There is precedent for the establishment of such schools in the existence of special schools such as those maintained for tuberculous contacts, not to mention the huge sums expended in the care of the hopelessly feeble-minded.

The pity of it is that the children who are subject to emotional disintegration are not stupid children. They are often brighter, as measured by standard tests of native ability, than their more docile classmates. It would seem that they have more to offer society, until inability to cope with the reality about them results in psychosis. Since it frequently can be determined that certain children are potentially psychotic it might be wise to provide separate resident schools in which to reorient them to the reality in which they must live.

NEWS NOTES

Dr. E. Lee Dorsett, St. Louis, was a guest of the Jersey County (Illinois) Medical Society at Jerseyville on December 9 and spoke on "Eclampsia."

At the meeting of the St. Louis Surgical Society on February 15 papers were presented by Drs. C. F. Sherwin, J. M. McCaughan, J. H. Hershey and J. Grey Jones, St. Louis.

Dr. Franklin E. Walton, St. Louis, was appointed assistant dean of the Washington University School of Medicine on January 28. Dr. Walton was graduated from Washington University School of Medicine in 1927, served on the resident surgical staff of Barnes Hospital for three years and was resident surgeon for two years. He was appointed an assistant in surgery on the staff of the medical school in 1928 and was made an instructor in 1937. Dr. Walton will work with undergraduate medical students and act as adviser to students seeking internships after graduation.

1. Insanity Not Increasing. Editorial, J. Missouri M. A. 35:325 (August) 1938.

The tenth annual meeting of the Medical Association of the Missouri Pacific Railroad will be held in Colorado Springs on March 15. Missouri physicians who will appear on the program are Drs. L. B. Harrison, O. B. Zeinert, Joseph A. Lembeck and H. Unterberg, St. Louis, and Hubert M. Parker, Kansas City.

The film "A New Day," a ten minute reel on pneumonia, has been released to theaters in Missouri. The film was produced under the sponsorship of the United States Public Health Service and the Metropolitan Life Insurance Company and was endorsed by the Missouri State Medical Association.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories
Ampoules Thiamin Chloride 1.0 mg., 1 cc.
Ampoules Thiamin Chloride, 10.0 mg., 1 cc.
Diarsenol Co., Inc.
Bismuth Subsalicylate in Oil Suspension
Merck & Co., Inc.
Stovarsol Tablets, 0.1 Gm.
Stovarsol Tablets, 0.05 Gm.
Scopolamine Hydrobromide—Merck
Scopolamine Hydrobromide Crystals—Merck
Scopolamine Hydrobromide Powder—Merck
Solution of Formaldehyde—Merck
National Drug Company
Antimeningococcic Serum, Refined and Concentrated
Sharp & Dohme
Pollen Extracts—Mulford, 2 cc. vial (each cc. containing 500 pollen units)
Pollen Extracts—Mulford, 10 cc. vial (each cc. containing 10,000 pollen units)
The Upjohn Company
Epinephrine Powder—U. S. P., 0.065 Gm. (1 gr.)—Upjohn
Solution Epinephrine 1:1000—Upjohn

ORGANIZATION ACTIVITIES

LEGISLATION DISCUSSED AT CALLED SESSION

A joint meeting of the officers of the Association and the presidents and secretaries of component societies was held in Jefferson City at noon on February 19, 1939, to discuss bills presented to the General Assembly which affect public health and the medical profession generally. Representatives of fifty-five county medical societies and of seventy-four counties attended the meeting. Because of illness Dr. B. W. Hays, Jackson, President, was unable

to attend and the President-Elect, Dr. James R. McVay, Kansas City, presided.

The legislation sponsored by the Association including a bill for the establishment of a board of examiners in the basic sciences and the annual registration of physicians at an annual fee of \$1 was discussed. The following resolutions were adopted:

Resolution on Annual Registration of Physicians

Resolved, That it is the sense of this meeting that a bill proposed for the annual registration of physicians as agreed to by the State Association's Committee on Public Policy has the unqualified endorsement and support of this assembly.

Resolution on Basic Science Act

Resolved, That this meeting, comprising one hundred twenty members of the Missouri State Medical Association, representing medical societies in seventy-four counties, meeting in Jefferson City on Sunday, the nineteenth of February, in extraordinary session, goes on record as urging upon the legislators and the Governor of this State the enactment of the pending Basic Science Act.

LECTURES ON PEDIATRICS AND OBSTETRICS

Lectures to the laity on pediatrics and obstetrics being given under the auspices of the State Board of Health, the Committee on Maternal Welfare of the State Association and the Extension Service of the University of Missouri College of Agriculture are scheduled as follow for March and April:

PEDIATRICS		
Date	County	County Extension Agent
March		
1-2	Crawford	Eugene Moore, Steelville
3	Medical Group	
6-7	Washington	Paul M. Bernard, Potosi
8	Iron	Paul M. Bernard, Potosi
9	Reynolds	Ted L. Joule, Ellington
10	Medical Group	
13	Madison	J. B. Caldwell, Fredericktown
14	St. Francois	Paul H. Teal, Farmington
15	Ste. Genevieve	B. K. Miller, Ste. Genevieve
16	Perry	J. A. Fairchild, Perryville
17	Medical Group	
20-21	Cape Girardeau	E. T. Mallinckrodt, Jackson
22	Scott	Frank B. Veatch, Benton
23	Mississippi	R. Q. Brown, Charleston

<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>	<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>
24	Medical Group		April		
27	New Madrid	Leslie Broom, New Madrid	3-4	Gentry	L. A. Saunders, Albany
28-29	Pemiscot	M. D. Amburgey, Caruthersville	5	Worth	Drew E. Bellairs, Grant City
30	Dunklin	C. R. Talbert, Kennett	6	Harrison	H. B. Steele, Bethany
31	Medical Group		7	Medical Group	
April			17	Putnam	C. E. Neff, Unionville
3	Stoddard	C. H. Alsbaugh, Bloomfield	18-19	Adair	Smith T. Powell, Kirksville
4	Bollinger	Harold Lemar, Marble Hill	20	Schuyler	Alva Mix, Lancaster
5	Wayne	John M. Baldwin, Greenville	21	Medical Group	
6	Butler	W. F. James, Poplar Bluff	24	Scotland	C. R. Pitney, Memphis
7	Medical Group		25	Knox	Paul Bebermeyer, Edina
17-18	Howell	Earl Allen, West Plains	26	Lewis	Arnold Barber, Monticello
19	Texas	George P. Smith, Houston	27	Clark	Jamie Naggs, Kahoka
20	Wright	Ray Hargrave, Hartville	28	Medical Group	
21	Medical Group				
24	Ozark	R. P. Christeson, Gainesville			
25-26	Douglas	A. T. Goodding, Ava			
27	Taney	Cloin Penner, Ozark			
28	Medical Group				

Secretaries of these counties are urged to contact the Extension Agent in his county and make arrangements for these lectures.

OBITUARY

JOHN FRANCIS MARTIN, M.D.

Dr. John F. Martin, Joplin, a graduate of the Columbus Medical College, Columbus, Ohio, 1881, died September 16, 1938, at the St. John's Hospital, Joplin, following a paralytic stroke on August 21. He was 83 years old.

Dr. Martin was born in Gullion County, Ohio. He attended the National Normal University at Lebanon, Ohio, and taught school for five years before studying medicine. He practiced in Jackson, Ohio, and Fort Collins, Colorado, before locating in Joplin in 1913.

Dr. Morgan was a member of the Masonic bodies including the York Rite and the Commandery and was a member of the Presbyterian Church. During the World War Dr. Martin was in charge of the Joplin medical advisory board.

Surviving are two sons, three daughters, four brothers and four sisters.

CLARENCE S. BRANSON, M.D.

Dr. Clarence Samuel Branson, St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1910, died September 16, 1938, at his home, aged 50 years.

Dr. Branson was born in St. Joseph and spent his entire life in his native community. He was educated in the public schools in St. Joseph, and attended Christian Brothers College before beginning his study of medicine. He began his practice in St. Joseph and continued there until his death.

He enjoyed a large practice and devoted all his time to fulfill his duty to his patients. He was an active member of the Buchanan County Medical Society and the St. Joseph Clinical Society. He was a member of the staffs

OBSTETRICS

<i>Date</i>	<i>County</i>	<i>County Extension Agent</i>
March		
1-2	Buchanan	Roscoe V. Hill, St. Joseph
3	Medical Group	
6-7	Clinton	Andrew Adam, Plattsburg
8-9	Caldwell	Leonard Voss, Kingston
10	Medical Group	
13-14	Holt	D. H. Carter, Mound City
15-16	Atchison	Vernon C. Jolley, Rockport
17	Medical Group	
20-21	Daviess	R. S. McClelland, Gallatin
22-23	DeKalb	F. P. Ward, Maysville
24	Medical Group	
27-28	Nodaway	A. J. Dinsdale, Maryville
29-30	Andrew	Wayne M. Sandage, Savannah
31	Medical Group	

of both hospitals and was a past president of the staff of St. Joseph's Hospital. He was a member of the Christian Church, was a Thirty-second Degree Mason, a member of various Scottish Rite bodies and of the Moila Temple Shrine. He was a man of extreme energy. He was closely attached to his patients and was beloved by his business acquaintances. He was a good physician and a valuable citizen.

He is survived by his widow, Mrs. Audeen Branson, and two sons.

The following resolutions were adopted by the Buchanan County Medical Society:

Resolutions

Resolved, That the members of the Buchanan County Medical Society express their sorrow in the loss of their esteemed brother by incorporating this resolution in the records of the Society. Be it also

Resolved, That a copy of this resolution be sent to the American Medical Association, the Missouri State Medical Association and the bereaved members of Dr. Branson's family.

W. ROGER MOORE, M.D.

H. W. CARLE, M.D.

OWEN W. D. CRAIG, M.D.

CARL LONDON CONRAD, M.D.

Dr. Carl L. Conrad, Pleasant Hill, a graduate of the University Medical College of Kansas City, 1907, died August 27, 1938, at St. Joseph's Hospital, Kansas City, aged 57 years. He collapsed a week preceding his death and did not regain consciousness.

Dr. Conrad interned at the General Hospital in Kansas City after completing his medical studies. He began his practice in Greenwood and in 1917 moved to Pleasant Hill where he practiced until his illness. He served in the army medical corps during the World War.

Dr. Conrad always adhered to the ethical practice of medicine and was honored and respected by all his colleagues. His active interest in his profession and the civic affairs of his community won him many friends and he was loved and respected by all who knew him. He will be sadly missed by his family and the community in which he lived. He is survived by his widow, Mrs. Ethel Gambrel Conrad, and three daughters.

The following resolutions were adopted by the Cass County Medical Society:

Resolutions

Resolved, That in the death of Dr. Carl London Conrad we have lost a member who was deeply concerned in the successful and continued advancement of scientific medicine, and one who has proved by his faithful attendance, by his willing service and many sacrifices that he had at heart the best interest and welfare of his patients and organized medicine of our county.

Resolved, That this resolution be spread upon our minutes and a copy sent to the family.

DAVID S. LONG, M.D., Secretary,
Cass County Medical Society.

WILLIAM H. ALLEN, M.D.

Dr. William H. Allen, Rich Hill, a graduate of the Louisville Medical College, Louisville, Kentucky, 1871, died of a heart ailment at his home on October 27, 1938, aged 90 years.

Dr. Allen was born in Farmdale, Kentucky. He attended the Kentucky Military Institute and became a professor of natural science but soon decided to study medicine. He practiced for a time in Carroll County, Missouri, and in 1873 moved to Rich Hill, then called Old Rich Hill. When the new town was started Dr. Allen moved to the new site and became the first mayor of Rich Hill. He had been identified prominently with the town since its beginning and devoted his life to the welfare of its citizens. He was loved by all in the community.

Failing eyesight caused Dr. Allen to retire four years ago from active practice but he went to the office every

day regardless of weather. He had practiced medicine in Rich Hill for sixty-five years.

Dr. Allen was elected an honor member of the Bates County Medical Society in 1929. He had held numerous offices in the Masonic Lodge.

Surviving are his widow, Mrs. Agnes Brown Allen; three sons, Drs. C. J. Allen, Rich Hill, William Henry Allen, Jr., Hume, and Mr. Clyde S. Allen, Little Rock; two brothers and one sister.

ROY R. MILLER, M.D.

Dr. Roy R. Miller, Mound City, a graduate of Ensworth Medical College, St. Joseph, 1905, died at his home on August 6, 1938, after a long illness caused by a heart and kidney ailment. He was 55 years old.

Dr. Miller was born at Dotham, Missouri, and spent his early childhood at Diller, Nebraska, moving with his family to Mound City when he was a child. After completing his medical education he practiced in Hamlin, Kansas, and Maitland and Lock Springs, Missouri. In 1910 he became associated with his father in Mound City and continued in active practice there until illness caused him to become inactive.

He is survived by his widow, Mrs. Ethel Miller, two sons, and his parents, Dr. and Mrs. J. W. Miller, Mound City.

BOOKS FOR LEISURE MOMENTS

DR. BRADLEY REMEMBERS

"Dr. Bradley Remembers" by Francis Brett Young (Reynal and Hitchcock, New York) combines an extremely readable story with the history of the science and practice of medicine in England from the eighties until after the World War. The story itself is typical of its author, a record of living with the happiness and hardships that make up the lives of a group of persons and the influence of these forces on others. Having practiced medicine, the author is well equipped to portray a doctor.

The story unfolds as the memories of Dr. Bradley as he sits in his living room, next his "surgery," for the last evening before he retires, and closes with him answering a call because it is one of his long time patients and they will have no money to pay the young doctor to whom he might have transferred the call.

He reviews in his memory his life, his early struggles, gaining his medical education, going in debt to buy his practice, his marriage, the death of his wife and son. He also remembers the controversies over the work of Lister and Pasteur, his brilliant friend who went to the Continent for further study, his unethical and ethical contemporaries, the adoption of the health insurance act in England.

The book is an interesting novel and an interesting history of medicine in England as seen through the eyes of the general practitioner.

EXPERIMENTAL STUDY MADE ON 32 CASES OF CYSTS OF THE KIDNEY

Reporting on thirty-two cases of large solitary serous cysts of the kidney, including two cases cured by instillation of 50 per cent dextrose solution, George Winthrop Fish, M.D., New York, points out in *The Journal of the American Medical Association* for Feb. 11 that although cystic disease of the kidney was noted three hundred years ago, very few experimental studies of the condition have been reported.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

MISSOURI STATE MEDICAL ASSOCIATION

82nd Annual Session

Excelsior Springs, April 10, 11, 12, 1939

Preliminary Program

Scientific Papers

Adson, A. W., Rochester, Minnesota: The Status of Sympathectomy for Hypertension.

Boucek, John J.; Gerson, Charles E., and Henske, Andrew C., St. Louis: Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis.

Cole, Paul F., Springfield: Cooperation With the Cancer Commission.

Cole, Warren H., Chicago: Surgical Aspects of Peptic Ulcer.

Gage, I. Mims, New Orleans: Surgery of Acute Cholecystitis. Acute Trauma of the Abdominal Viscera (Subcutaneous Injury of the Abdomen). Round table: Abdominal Injuries.

Graham, Evarts A., St. Louis: Accomplishments of Modern Chest Surgery.

Hartmann, Alexis F., St. Louis: Clinical Use of Sulfanilamide and Its Derivatives.

Hays, B. W., Jackson: Address of the President.

Kirklin, B. R., Rochester, Minnesota: The Value of X-Ray Diagnosis as it Pertains to the Physician in General Practice.

Koch, Sumner, L., Chicago: The Worker's Hand.

Kulowski, Jacob, St. Joseph: The Modern Approach to the Problem of Acute Hematogenous Osteomyelitis.

Litzenberg, J. C., Minneapolis, Minnesota: Obstetrics.

Luten, Drew, St. Louis: title to come.

Malamud, William, Iowa City, Iowa: Modern Trends in the Treatment of Schizophrenia.

McVay, James R., Kansas City: Address of President-Elect.

O'Reilly, Archer, St. Louis: The Crippled Child in Missouri.

Robinson, G. Wilse, Jr., Kansas City: The Treatment of Depressions and Melancholias.

Smith, Fred M., Iowa City, Iowa: Atypical Forms and Treatment of Coronary Thrombosis.

Stewart, J. Edgar, St. Louis: Internal Fixation of Fractures of the Neck of the Femur.

Taussig, Fred. J., St. Louis: Cooperation With the Cancer Commission.

Whitaker, Walter, Quincy, Illinois: Pneumonia in Childhood. Round table: Pediatrics.

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Buchanan County Medical Society

The Buchanan County Medical Society was called to order by the president, Dr. F. X. Hartigan, at 8 p. m. at the Missouri Methodist Hospital on January 4.

Dr. E. E. Wadlow, member of the auxiliary committee on public policy, reported on the proposed Basic Science Law, Registration of Physicians and the Injunction Act and the prepayment plans of medical service.

Dr. G. T. Bloomer reported that Group Hospital Service, Inc., was considering giving up the office in St. Joseph because they were unable to get advertising and the community did not seem interested. It was moved by Dr. Bloomer, and seconded and passed, that money be taken from the treasury for advertising purposes. It was suggested that the amount of money be stipulated and that the Chamber of Commerce be invited to cooperate in Group Hospital Service, Inc.

A legislative committee was appointed and instructed to draw up resolutions for presentation to congressmen stating the attitude of the Society toward state medicine. Drs. W. T. Elam, chairman, G. T. Bloomer and E. E. Wadlow were appointed to the committee.

The application of Dr. William Rost for provisional membership was referred back to the board of censors.

The Society went on record as approving the Basic Science Law.

Amendments 1, 2, 3 and 4 to the by-laws were adopted.

Dr. W. Roger Moore read a paper on "The Treatment of Toxicity of Snake Bite" following a motion picture on the preparation of antivenom serum. Dr. Moore discussed the diagnosis and treatment of snake bite and gave a case history of a child whom he had recently attended. The paper was discussed by Dr. L. Paul Forgrave and closed by Dr. Moore.

O. EARL WHITSELL, M.D., Secretary.

Caldwell-Livingston County Medical Society

The Caldwell-Livingston County Medical Society was called to order in Chillicothe on December 28 by the secretary, Dr. D. M. Dowell, who explained that the president had moved away.

The following officers were elected: President, Dr. H. S. Dowell, Chillicothe; vice president, Dr. H. H. Patterson, Braymer; recording secretary, Dr. E. A. Thompson, Breckenridge; acting secretary, Dr. D. M. Dowell, Chillicothe; delegates, Drs. H. M. Grace, Chillicothe, and E. A. Thompson, Breckenridge; alternates, Drs. H. H. Patterson, Braymer, and Reuben Barney, Chillicothe.

Members present were Drs. Reuben Barney, R. J. Brennan, G. W. Carpenter, Alfred Collier, H. S. Dowell, D. M. Dowell, H. M. Grace and J. H. Timberman, Chillicothe; E. A. Thompson, Breckenridge; G. S. Dowell and H. H. Patterson, Braymer.

Meeting of January 3

The Society was called to order by the president, Dr. H. S. Dowell, Chillicothe.

Various clinical and hospital problems were discussed.

Members present were Drs. H. H. Patterson and G. S. Dowell, Braymer; E. A. Thompson, Breckenridge; Reuben Barney, R. J. Brennan, G. W. Carpenter, H. S. Dowell, D. M. Dowell and H. M. Grace, Chillicothe.

D. M. DOWELL, M.D., Secretary.

SECOND COUNCILOR DISTRICT

H. B. GOODRICH, HANNIBAL, COUNCILOR

Linn County Medical Society

The Linn County Medical Society met at the office of Dr. Roy R. Haley, Brookfield, January 11.

The following officers were elected: President, Dr. M. L. Diekroeger, Marceline; vice president, Dr. J. R. Dixon, Linneus; secretary and treasurer, Dr. G. B. Putman, Marceline.

Dr. W. J. Sullivan, director of the division office of the State Board of Health, addressed the Society. It was decided that no action toward cooperation with the office would be taken until more information was obtained on the work.

A report of the State Committee on Medical Economics was discussed.

Drs. G. B. Putman, Marceline, and J. H. Lucas, Brookfield, were appointed a committee to investigate medical prepayment plans.

Dr. E. F. Weir, Meadville, was appointed the legislative representative of the Society.

G. B. PUTMAN, M.D., Secretary.

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society met at the Public Library Building, Moberly, on January 10.

Dr. Spencer L. Freeman, Kirksville, was a guest speaker and talked on "The Treatment of Diabetes by the General Practitioner."

Dr. Paul F. Fletcher, St. Louis, spoke on "Abdominal Pregnancy" and showed motion pictures to illustrate his talk.

Dr. Floyd A. Barnett, Paris, was accepted to membership by transfer from the Callaway County Medical Society.

Those present were Drs. Freeman and Fletcher, L. E. Huber, M. C. McMurry, J. F. Flynt and Floyd A. Barnett, Paris; P. V. Dreyer, Huntsville; R. A. Woods, Clark; F. L. McCormick, M. E. Leusley, C. C. Smith, M. P. Hunter, W. R. Langston, L. O. Nickell, R. D. Streeter and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR

Audrain County Medical Society

The Audrain County Medical Society met on December 16.

The following officers were elected: President, Dr. Harry F. O'Brien, Mexico; secretary, Dr. Karl E. Maneval, Mexico; delegate, Dr. Robert S. Williams, Mexico; alternate, Dr. J. Frank Harrison, Mexico.

Drs. Paul E. Coil and J. Frank Harrison, Mexico, were appointed a committee on public policy to confer with legislators.

KARL E. MANEVAL, M.D., Secretary.

Cole County Medical Society

The Cole County Medical Society met on December 13 in Jefferson City.

The following officers were elected: President, Dr.

Hugh W. Maxey, Jefferson City; vice president, Dr. J. T. Leslie, Jefferson City; secretary-treasurer, Dr. James A. Hill, Jefferson City; delegate, Dr. J. A. Ossman, Jefferson City.

JAMES A. HILL, M.D., Secretary.

SIXTH COUNCILOR DISTRICT

A. J. CAMPBELL, M.D., COUNCILOR

Pettis County Medical Society

The Pettis County Medical Society met on January 25 for a dinner in honor of Dr. Cord Bohling, Sedalia, who will soon have completed a half century of active practice. Dr. Bohling was graduated from the Missouri Medical College in 1889. He practiced at Plymouth for fifteen years as a "horse and buggy doctor" before he located in Sedalia where he has continued to practice.

Dr. E. F. Yancey, Sedalia, who has practiced for more than fifty years, acted as toastmaster at the banquet which practically every member of the Society attended. A three piece orchestra furnished music.

Dr. R. Seaton Tyler, Sweet Springs, who has practiced more than fifty years, was invited as an honor guest but was unable to attend because of inclement weather.

A. L. WALTER, M.D., Secretary.

Vernon-Cedar County Medical Society

The Vernon-Cedar County Medical Society met on January 13 with Dr. C. B. Davis, Walker, presiding.

Several communications to the Society were read and discussed.

Dr. T. G. Duckett, Sheldon, was elected a member.

Dr. Orr Mullinax was accepted to membership by transfer from the Buchanan County Medical Society, and Dr. Prior Shelton by transfer from the Jackson County Medical Society.

The following officers were elected: President, Dr. C. B. Davis, Walker; president-elect, Dr. W. L. Love, Nevada; secretary-treasurer, Dr. R. W. Pearse, Jr., Nevada; committee on public policy, Dr. R. H. Potter, Nevada; delegates (Cedar County), Dr. J. W. Dawson, Eldorado Springs, alternate, Dr. J. R. Williams, Eldorado Springs; (Vernon County), Dr. R. B. Wray, Nevada, alternate, Dr. C. B. Davis, Walker.

Drs. T. B. Todd, R. W. Pearse and R. B. Wray were appointed a committee to appear before the county court and urge the appointment of a full time nurse for Vernon County.

R. W. PEARSE, JR., M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Dent County Medical Society

The Dent County Medical Society met at the office of Dr. F. E. Butler, Salem, on January 12, at 8:30 p. m.

The following officers were elected: President, Dr. Edward W. Cline, Salem; vice president, Dr. Marvin Grossman, Salem; secretary-treasurer, Dr. F. E. Butler, Salem; delegate, Dr. F. E. Butler, Salem; alternate, Dr. G. E. Joseph, Salem.

A round table discussion was held on rural medicine, prepayment medical plans and legislation.

Dr. L. H. Hunt, Salem, volunteered to see the county representative in regard to the legislative program.

Members present were Drs. L. H. Hunt, C. H. Diehl, C. W. Meinershagen, Marvin Grossman, E. W. Cline and F. E. Butler, Salem.

F. E. BUTLER, M.D., Secretary.

South Central Counties Medical Society

The South Central Counties Medical Society met at the Freeland Hotel, Houston, January 9, with the following members and guests present: Drs. A. C. Ames, H. G. Frame and R. A. Ryan, Mountain Grove; A. H. Thornburgh and E. R. Bohrer, West Plains; J. R. Womack, W. F. Herron and L. M. Dillman, Houston; J. R. Mott, Hartville; J. B. McDaniels, Summersville; C. F. Callihan, Willow Springs, and R. Ned White and L. M. Rigney, Springfield.

The secretary was instructed to write the state representatives and senator regarding the Basic Science Law and the Annual Registration of Physicians.

The plan of the American Social Hygiene Association was approved and the secretary instructed to write for literature.

Dr. R. Ned White, Springfield, discussed "The Heart in Pneumonia."

Dr. L. M. Rigney, Springfield, spoke on "Treatment of Pneumonia."

All present took part in a discussion of these papers and the speakers were extended a vote of thanks.

It was decided to hold the next meeting in Willow Springs at the Horton Hotel on February 9, the program to be "Highway Accidents."

E. R. BOHRER, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society met at the Colonial Tavern, Cape Girardeau, on January 9, with Dr. J. H. Cochran, president, in the chair.

The bills before the legislature were discussed.

Drs. M. H. Shelby, C. T. Herbert and R. A. Ritter, Cape Girardeau, were appointed to the program committee.

Drs. Glenn J. Tygett, D. B. Elrod, Cape Girardeau, and D. R. Seabaugh, Jackson, were appointed to the economics committee.

Drs. D. H. Hope, P. B. Nussbaum, Cape Girardeau, and Edward Crites, Sedgwickville, were appointed to the legislative committee.

After a dinner a scientific program was presented.

Dr. Henry G. Rudner, Memphis, Tennessee, spoke on "Agranulocytic Angina."

Dr. John J. Shea, Memphis, Tennessee, talked on "Mononucleosis."

The presentations were interesting and instructive and were extensively discussed.

Members and guests present were: Drs. John J. Shea and Henry G. Rudner, Memphis; P. M. Nation, D. L. Lang, C. D. Nobles, H. Phillips, A. F. Barnett and Berry V. Rife, Anna, Illinois; J. L. Harwell, D. A. Hoxie, C. L. Qualls, Poplar Bluff; Howard A. Dunaway, Sikeston; D. I. L. Seabaugh, Jackson; A. E. Lee, Illinois; Edward Crites, Sedgwickville; J. H. Cochran, C. T. Herbert, Glynn Tygett, W. F. Oehler, P. B. Nussbaum, O. L. Seabaugh, R. A. Ritter, L. H. Cunningham, F. W. Hall, H. K. Tom, D. H. Hope, W. E. Yount, G. W. Walker, M. H. Shelby and Carl A. W. Zimmermann, Cape Girardeau.

CARL A. W. ZIMMERMANN, M.D., Secretary.

Pemiscot County Medical Society

The Pemiscot County Medical Society met at the Top Hat Cafe in Caruthersville on January 12 with the following members and guests present: Drs. P. J. Aquino, J. B. Luten, C. C. Castles, C. F. Cain, J. R. Pinion, Caruthersville; L. E. Cooper, Cooter; W. R. Limbaugh, Hayti; W. H. Aufranc, Kennett, and G. C. Bishop, dentist, Caruthersville.

The following officers were elected: President, Dr. A. J. Speer, Deering; vice president, Dr. C. C. Castles, Caruthersville; secretary-treasurer, Dr. W. R. Limbaugh, Hayti; delegate, Dr. W. R. Limbaugh, Hayti; alternate, Dr. J. B. Luten, Caruthersville.

The legislative program was discussed.

The next meeting will be on February 16 with Dr. L. E. Cooper at Cooter.

W. R. LIMBAUGH, M.D., Secretary.

Perry County Medical Society

The Perry County Medical Society met at the office of Dr. O. A. Carron, Perryville, at 8:30 p. m. on January 13.

The secretary reported on the free clinic held for the Schick testing of all children in Perryville. The clinic was conducted with the cooperation of the Lions Club. Ninety-one children were tested, sixty-seven gave a positive reaction and twenty-four a negative reaction. Most of the children who gave a positive reaction have been immunized.

The secretary was instructed to write letters to the senator and representative asking their support in passing the Basic Science Act.

The following officers were elected: President, Dr. B. T. Koon; secretary, Dr. J. J. Bredall; delegate, Dr. O. A. Carron; alternate, Dr. G. A. Blaylock, all of Perryville.

O. A. CARRON, M.D., Secretary.

Scott County Medical Society

The Scott County Medical Society met on January 11.

The following officers were elected: President, Dr. Howard Dunaway, Sikeston; vice president, Dr. H. M. Kendig, Sikeston; secretary and treasurer, Dr. U. P. Haw, Benton.

Dr. Howard Throgmorton, Sikeston, was elected a member.

The Society voted its endorsement of the Basic Science Act.

U. P. HAW, M.D., Secretary.

Stoddard County Medical Society

The Stoddard County Medical Society met at the office of Dr. Frank LaRue, Dexter, on January 12 at 7:30 p. m.

Those present were: Drs. W. J. Hux and J. P. Brandon, Essex; E. L. Elmore, Puxico; Frank LaRue, T. L. Waddle and W. C. Dieckman, Dexter, C. E. Lewis, Adviance.

The Basic Science and Injunction acts were endorsed.

The secretary was instructed to write the senator and representative concerning this action.

The following officers were elected: President, Dr. S. S. Davis, Dexter; vice president, Dr. J. P. Brandon, Essex; secretary, Dr. W. C. Dieckman, Dexter; delegate, Dr. T. L. Waddle, Dexter; alternate, Dr. Frank LaRue, Dexter; censors, Drs. E. L. Elmore, Puxico; J. P. Brandon, Essex, and S. S. Davis, Dexter.

W. C. DIECKMAN, M.D., Secretary.

BOOK REVIEWS

SYNOPSIS OF CLINICAL LABORATORY METHODS. By W. E. Bray, B.A., M.D., Professor of Clinical Pathology, University of Virginia, etc. Fifty-one illustrations, seventeen color plates. Second edition. St. Louis: The C. V. Mosby Company. 1938. Price \$4.50.

This second edition of Dr. Bray's book is an interesting addition to the literature of clinical-pathological procedures. It gives the standard methods for laboratory

tests together with some important points on interpretation of laboratory findings. The illustrations are good. The latest laboratory methods are set forth.

Descriptions are purposely brief and unimportant details have been omitted. The object of the book is to bring together in a small volume for ready reference the more recent advances and the more frequently used methods of laboratory diagnosis. R. B. H. G.

SCARLET FEVER. By George F. Dick, M.D., D.Sc., Professor of Medicine, University of Chicago; Attending Physician, Billings Memorial Hospital; Editor, Department of Infectious Diseases, The Year Book of General Medicine, and Gladys Henry Dick, M.D., D.Sc., 304 S. Dearborn St., Chicago, Illinois: The Year Book Publishers, Inc. 1938.

This rather small book by two workers shows a remarkable and unusual restraint for medical authors of the present time. There is a brief and apparently fair historical résumé of the subject followed by a brief résumé of the pathology, anatomy, symptoms, diagnosis and treatment. The Dicks may be a bit too enthusiastic about the results in the use of antitoxin in the treatment of scarlet fever, and there are perhaps some men who disagree with the effectiveness of this serum. The new antitoxin as used by the two authors apparently gives excellent results if used early. Only brief mention is made of sulfanilamide and allied compounds, probably because the book was in print before a great deal of work had been done with this substance.

The last half of the book deals with the manufacture, standardization and use of toxin, both as a test for susceptibility and for prophylaxis.

The reviewer believes this book to be well worthwhile and that it should be read by everyone interested in the subject of acute infectious diseases. R. O. M.

INTERNS HANDBOOK. A Guide, Especially in Emergencies, for the Intern and the Physician in General Practice. By Members of the Faculty of the College of Medicine, Syracuse University. Under the direction of M. S. Dooley, A.B., M.D., Chairman, Publications Committee. Second edition, revised and reset. Philadelphia: J. B. Lippincott Company. 1938. Price \$3.00.

Nearly ten years ago the Lippincott Company sponsored an intern handbook designed to aid in bridging the gap between medical school and internship. This little volume, like other efforts of the kind, is of definite value in orienting the young physician in the practical application of the theory of the college. All of them should be given the greatest possible encouragement.

It is a little disconcerting to find the use of old tuberculin recommended in preference to the purified protein derivative. It may prove a trifle unhandy to find the technic of spinal puncture described in one section and the examination of spinal fluid examination in another. But at most these are minor differences of opinion and in no wise detract from the usefulness of the volume. B. Y. G.

THE PRACTICE OF MEDICINE. By Jonathan Campbell Meakins, M.D., Professor of Medicine and Director of the Department of Medicine, McGill University; Physician-in-Chief, Royal Victoria Hospital, Montreal, etc. Second Edition. With 521 illustrations including 43 in color. St. Louis: The C. V. Mosby Company. 1938. Price \$12.50.

The appearance of a second edition within two years is evidence of the value of this "Practice of Medicine."

Departing from the customary practice Meakins introduces a large number of pictures portraying many medical conditions better than words could possibly do.

There can be no doubt but that this is an excellent idea although it must increase the cost of producing the book considerably.

To this reviewer it seems unfortunate that so many of the illustrations are taken from other texts (due credit given), and the reproduction of many of the photographs is not especially good, e. g., figures 9 through 15. However, it is not too much to hope that some future editions will utilize the rapidly improving processes of color photography.

Despite the emphasis on illustrations this actually is one of the most readable texts on medicine and it is highly recommended for the student and practitioner's library. B. B. P.

PHYSICAL DIAGNOSIS. By Richard C. Cabot, M.D., Professor of Clinical Medicine Emeritus in Harvard University, and F. Denette Adams, M.D., Instructor in Medicine in the Harvard Medical School, Courses for Graduates. Twelfth edition. Baltimore: William Wood & Company, Medical Division of the Williams & Wilkins Company. 1938. Price \$5.00.

This book offers everything that a book by Cabot should offer. It is complete, concise and explicit. Illustrations abound throughout the volume to elucidate each passage. The index of 51 pages in a volume of 846 pages insures ready accessibility to any subject.

It may be surprising to find that heart murmurs are still divided into the functional and pathologic. Perhaps that is only an evidence of the slowness with which the newer statistical investigations find a way into the textbook. Perhaps, however, it is an evidence of the author's disagreement with those life insurance investigations that have shown that murmurs heard over any portion of the heart (except possibly in the pulmonic area) are accompanied by decreased duration of life.

This new edition of a standard text is deserving of ready acceptance by students and by those practitioners who wish to renew their acquaintance with the subject of physical diagnosis. B. Y. G.

OUTLINE OF ROENTGEN DIAGNOSIS. An Orientation in the Basic Principles of Diagnosis by the Roentgen Method. By Leo G. Rigler, B.S., M.B., M.D., Professor of Radiology, University of Minnesota, Minneapolis, Minnesota. Atlas edition. Two hundred and fifty-four illustrations shown in 227 figures presented in drawings and reproductions of roentgenograms. Figures six to fifty-one and fifty-five to seventy-two are drawings in an original technic by Jean E. Hirsch. Philadelphia: J. B. Lippincott Company. 1938.

Primarily, this seems to be a textbook for medical students and a good one. All the material is arranged under anatomical classifications with subdivisions that carry the reader along in a most logical manner. There are no long, verbose paragraphs to confuse. The brevity of many statements provides a dogmatic quality that is essential for students. Experience and intelligence can temper these dogmatic facts into useful knowledge later.

This book claims to be an orientation of the basic principles of diagnosis by the roentgen method and it truly carries through with this idea. Therefore, this would be a good book for any doctor who has acquired his knowledge of roentgen interpretation by the kindergarten method of copycatism rather than trained analysis of roentgen shadows. Many self-trained radiologists know a great deal about their specialty but have never had occasion to orientate their knowledge until they were asked questions by an examining board or a court.

The chapters upon the digestive tract, gallbladder and

the abdomen are commended not only to students but to seasoned radiologists. The actual, presumptive and inferential values of roentgen findings are arranged in almost a diagrammatic degree of simplicity. Rigler's analytical method of approach to interpretation has all the finesse of a Japanese diplomat.

Rigler has constructed a book entirely different from the usual conversational type of textbook. It carries the student or inquisitive physician from the innocent field of osseous anatomy to the complications of myelography and hystero-salpingography without any let-down of the merits and superiority of roentgen diagnosis as an integral field of clinical medicine. E. H. S.

LABORATORY MANUAL OF HEMATOLOGIC TECHNIC. By Regena Cook Beck, M.A., M.D., Formerly Instructor in Pathology and Bacteriology at George Washington University Medical School; Head of the Department of Bacteriology, William and Mary College Extension; Pathologists to Stuart Circle Hospital and Director of the Stuart Circle Hospital School of Medical Technology, Richmond, Va. With a foreword by Frank W. Konzelmann, M.D., Professor of Clinical Pathology, Temple University, Philadelphia. 389 pages with seventy-nine illustrations. Philadelphia and London: W. B. Saunders Company. 1938. Price \$4.00.

The tremendous number of books and articles being written on blood and blood diseases shows that this field is assuming a more important place in the modern practice of medicine. A great deal of this interest in blood and blood dyscrasias is due in no small measure to the improvement in hematological technic which has followed the work of such investigators as Sabin, Arneith, Schilling, Osgood and others. Their contributions have come so quickly and in such abundance that none but those interested exclusively in the field of hematology could hope to keep up with the progress made in this field. The book under discussion does much to bring one up to date on these matters. It is perhaps unfortunate that the book is entitled a laboratory manual, for while it is a laboratory manual primarily, it also contains much which is of value in the interpretation of the laboratory findings. The reviewer particularly recommends the chapters on "Determination of Indexes," "Leukocytosis" and "Leukopenia." A careful study of this book will increase the value of all hematological laboratory procedures to the physician. The book is an excellent one for the technician since it is so detailed in the technic dealing with the examination of the blood. Blood chemistry is of course not included.

The book is an excellent one giving precedent, as it should, to the opinions of the author but indicating clearly controversy when controversy exists. This book deserves careful consideration by any one interested in a practical way in hematological methods and interpretation. R. O. M.

SURGICAL PATHOLOGY. By William Boyd, M.D., LL.D., M.R.C.P. Ed., F.R.C.P. Lond., Dipl. Psych., F.R.S.C., Professor of Pathology, University of Toronto. Fourth edition, thoroughly revised with 476 illustrations and fifteen colored plates. Philadelphia and London: W. B. Saunders Company. 1938. Price \$10.00.

The fourth edition of Boyd's "Surgical Pathology" is a worthy companion to the recent edition of "Medical Pathology" by the same author. The steadily increasing popularity of these two books is the best evidence of their value in this branch of medicine.

In this last edition the author has made some noteworthy additions to the text and new illustrations, many of them in color, have been added. The second chapter starts with a brief but practical consideration of the more common types of infection including their

causes and chief diagnostic criteria; next a few paragraphs concerning the use of vaccines, giving the most common pathological conditions in which they may be helpful, and directions for the collection of material for their preparation. The use of Coley's fluid in the treatment of nonmelanotic types of sarcoma is discussed briefly. Following this is an evaluation of various therapeutic sera such as are used in diphtheria, tetanus, meningitis and poliomyelitis. Finally, a discussion of the interpretation of leukocytosis and a practical consideration of blood typing form the closing paragraphs of the chapter. The addition of such a chapter is a rather new departure in a textbook of pathology but one which will be appreciated, especially by "the horse and buggy doctor."

In the chapter on "Special Wound Infections" paragraphs have been added on lymphogranuloma venereum, and granuloma inguinale with the chief differential diagnostic features.

In the chapter on "Surgical Shock" the use of gum acacia instead of saline is mentioned and there is some discussion of the cause of capillary paralysis.

In the pages devoted to tumors, a paragraph has been added on radionecrosis and in discussing carcinoma of the thyroid, the author takes occasion to disagree emphatically with those who attempt to justify such an entity as "benign metastasizing goiter." The paragraph on sarcoma of the thyroid appearing in previous editions has been omitted, and a paragraph on tumors of the parathyroids added.

Such changes and additions in the new edition are evidence of the author's interest in keeping his books up with continuous developments in the field of pathology.

The two volumes on surgical and medical pathology are valuable additions to the library of any student, internist, surgeon or pathologist. R. E. D.

A TEXTBOOK OF BACTERIOLOGY. By Thurman B. Rice, A.M., M.D., Professor of Bacteriology and Public Health at the Indiana University School of Medicine. Second edition, revised. Philadelphia and London: W. B. Saunders Company. 1938. Price \$5.00.

This is the second edition of this book, issued two years after the first edition. We reviewed the first edition and found it to be a good short textbook of bacteriology. The purpose of the writer of the book has been to furnish a relatively simple textbook of bacteriology to students so that it could be mastered in one semester. As such, we can heartily recommend it to those who want a brief authoritative description of modern bacteriology. It does not in any way pretend to include a bibliography, extended references or quotations. It is merely an introduction to the subject.

The author calls attention to the fact that he has included in his present edition several new subjects not covered in the first; namely, typing of the pneumococcus, sulfanilamide therapy, use of the tetanus alum-toxid and a few other lesser procedures.

We like particularly Dr. Rice's discussion of immunity which, while brief, is still well handled. In the appendix he has a good section on special bacteriology which includes the bacteriology of the urine, the gross appearance of infected wounds, the bacteriology and pathology of decubitus ulcers, chronic focal infections and pyrogenic or fever producing substances in distilled water. He has in another appendix given an excellent discussion of the collection of samples.

It is regrettable that in this section Dr. Rice did not speak of the Brahdy method in connection with the diagnosis of diphtheria. This method has been of untold advantage in many cases.

We feel sure that the readers of this little book will esteem it highly. R. B. H. G.

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CANCER OF THE BREAST

SURGICAL TREATMENT

CLAUDE J. HUNT, M.D.

KANSAS CITY, MO.

Many valuable contributions have been made in an effort to distinguish between benign and malignant lesions of the breast. Lockwood has presented some excellent work in roentgenograms of the breast and has demonstrated the difference between benign and malignant lesions from the appearance of the tumor itself, from its effect upon the surrounding breast tissue and effect upon the muscle planes. Cutler has assisted materially by transillumination, and Best has recently visualized the ducts by an injection of opaque media into the ductal orifices. Mammography may be of benefit in localization of a ductal lesion in a discharging or bleeding nipple.

The early diagnosis of cancer of the breast is difficult and because of the relationship of benign lesions to the subsequent development of cancer, all tumors of the breast should be removed as soon as discovered. The tumor should be widely excised, without trauma and the bisected gross specimen carefully studied and, if any question exists as to the nature of the growth, a frozen section should be made immediately. Further surgery depends upon the result of this study. In a large majority of cases the bisected gross specimen reveals the nature of the tumor. These facilities should always be available for the immediate examination of the breast lesions. Radical surgery done several days later does not have as favorable a prognosis as when done immediately. It is unwise to bisect the lesion *in situ*.

Biopsy of a malignant breast has been advised by Bloodgood with closure followed by preoperative radiation and surgery. Others employ biopsy both by section and aspiration for diagnostic purposes with no untoward effects. Biopsy in questionable cases may be inaccurate. A report of benignancy may be given when in reality the tumor is malignant. The section gave an inaccurate inter-

pretation because it had not yet been invaded by malignant cells. I have employed biopsy only in inoperable malignancy where the histology of the tumor was desired to facilitate subsequent radiation. This should be done by the radio knife or cautery excision to lessen embolic metastasis into venous channels.

A serous or bloody discharge from the nipple is indicative of ductal pathological change and should receive prompt surgical attention. Local excision in the absence of a definite palpable tumor rarely results in cure. The ductal growths are usually multiple and require subsequent mastectomy. I have found for cosmetic reasons that simple mastectomy for a benign lesion is best performed through a transverse incision.

The value of any treatment for malignancy of the breast is based upon the end results measured in increase of life or cure based upon a given period of years. Naturally, all cases cannot be assigned to any one form of treatment. There are many factors that determine the most appropriate procedure to follow. Effective surgical treatment is dependent upon the proper selection of cases, adequate surgery, the age of the patient, the physiological activity of the breast, location and extent of the lesion, nature and cellular characteristics of the growth.

It is obvious no treatment can be properly evaluated unless it is used in a group of suitable cases and unless it is adequately employed. The condition must be in an operable state and the surgery must be extensive enough to remove all cancer and cancer bearing tissue.

The relationship of age to the progress of malignancy has long been a common observation. Youth contributes to rapid growth because of cellular nutrition and an abundance of blood and lymph supply, while age diminishes cellular activity and affords a more restricted blood and lymph supply. The younger the victim of malignancy the more rapid the growth. Elderly individuals may harbor a malignant growth for years without apparent harm but youth possesses no such faculty.

Pregnancy and lactation increase cellular activity, afford abundant blood and lymph supply and accelerate malignant extension. The prognosis is

bad and the result with any form of treatment is disappointing. The termination of pregnancy and sterilization are advised.

The location of the tumor in the breast may facilitate greatly or hinder the thoroughness and ease with which the operation of radical resection may be performed, and likewise may materially indicate the nature of the procedure. Tumors lying well out to the margin of the breast either mesially or laterally are approached with more technical difficulty and with less certainty of thoroughness than those placed well toward the center of the breast. Malignant tumors near the inner margin of the breast may metastasize early into the mediastinum. Transverse incisions for these lateral tumors afford a wider excision of skin over the tumor mass and the axilla can be exposed by this method.

Lesions in the upper quadrant where the lymphatic drainage is largely toward the axilla usually do not necessitate rectus fascial sheath removal. If such seems necessary, axillary involvement is almost certain to be so extensive that the case is inoperable. While on the contrary, lesions of the lower quadrants of the breast require stripping the upper portion of the rectus muscle of its fascia and adequate dissection of the lateral chest wall posteriorly in addition to axillary dissection.

The physical characteristics of the lesion are most important in judging the operability of the case. Nodular areas of skin involvement, marked discoloration or infiltration of its surface, fixation of the tumor, edema or inflammatory reactions and fixed axillary gland involvement are beacon lights against surgery. Certain criteria point to the nature of the underlying pathological condition. The hard scirrhous lesion with associated dimpling of the skin and retraction of the nipple indicate an abundance of fibrous tissue and usually a low grade malignancy. It is resistant to radiation but responsive to adequate surgery under operable conditions.

A rounded dome-like appearing tumor without skin dimpling or nipple retraction is distinctly more cellular and contains less fibrous tissue. It tends to increase in glandular fashion, is only moderately radio sensitive and if operable is surgical.

Ductal lesions and epithelial lesions around the nipple are characterized by discharges from the nipple, indefinite tumor masses and areas of ulceration. Radiation or surgical removal is dependent upon the local physical state of the lesion.

Those lesions, rare in number, characterized by secretory properties which fuse the stroma and matrix into a jelly substance are radio resistant, low grade in character and primarily operable.

Lesions of an edematous inflammatory character or of the rapidly growing anaplastic type of cellular activity are never surgical but are distinctly radio sensitive. Even the bone metastasis of anaplastic type show sensitive irradiation properties.

The cellular characteristics of a lesion have much

to do with prognosis. It is admittedly difficult to determine the entire cellular composition of a malignant lesion, but valuable information can be obtained by a careful study from various sections of the tumor. Sections from a single area may be deceiving and fail to show the true nature of the malignancy.

Certain criteria as to size and maturity of the cell, evidence of mitosis and secretory and infiltration properties are valuable indications as to the degree of malignancy. The more undifferentiated the cell the more malignant it is and the nearer the cell approaches the normal the less malignant. This information is important from the radiological standpoint as the more embryonic the cell the more it is radio sensitive. However, as Ewing has said, no cellular study can replace an adequate clinical study of the lesion as a guide to prognosis. Quick emphasizes the clinical and anatomic involvement as a guide to prognosis. Adair, Harrington, Portmann and many others place prognostic significance upon grading of malignancy and the relationship to axillary involvement.

The Mayo observations showed that axillary lymph gland invasion bore a relation to grouping as follows: 14.3 per cent in grade 1, 48.1 per cent in grade 2, 76.6 per cent in grade 3, and 88.6 per cent in grade 4.

The lymph glands act as check stations against malignant invasion and the first line of defense is in the axillary glands. At this stage the tumor is usually still operable but when the second line of defense in the supraclavicular region is reached extension has passed beyond possibility of surgical attack.

Many have found that axillary adenopathy was not always of a malignant nature. Harrington found lymph nodes present clinically in 60 per cent of their cases, but of these 68 per cent proved to be malignant and the remaining 32 per cent were inflammatory. He concluded, therefore, that surgery should not be refused because of axillary lymph gland involvement. In the 40 per cent in which no lymph gland involvement was found clinically, 29 per cent showed glandular involvement at operation. The New Haven Hospital showed that exactly 50 per cent of sixty-four cases examined showed malignant axillary invasion. In thirty-one cases with palpable lymph glands they found twenty-one were malignant and ten were not. Massachusetts General Hospital reports an interesting comparison of cases of axillary involvement between private and charity patients. The private patients showed 51 per cent without palpable axillary glands while the clinic group showed only 34 per cent without glands.

Indications for immediate surgery are a freely movable tumor without extensive skin invasion, fixed axillary glands, absence of supraclavicular adenopathy, mediastinal, pleural or skeletal metastasis.

A proper conception of the advisability of imme-

diate surgery can be obtained only by a thorough study of the case. Roentgen ray studies of the chest, spine and pelvic bones should be made to eliminate hidden metastasis. Careful search should be made for all available glandular involvement and the nature and character of the local lesion should be studied carefully.

Surgery, when employed for an operable lesion, is for the purpose of curing the patient if possible.

The incision may vary materially according to the location and extent of the lesion. It should be adapted to the individual case. It should include primarily a wide area of skin and be well away from the involved area of the breast and should be placed so that the scar will not ultimately fall in the axilla. A scar in the axilla may materially interfere with the free motion of the arm and may obstruct considerably the free circulation of blood resulting in a swollen, painful extremity. The bad effects of a scar so placed can be avoided by placing the incision well above the axilla so that when closure is completed there is a smooth flap of skin and subcutaneous tissue in the axillary space.

The skin flap of the incision should be freely undermined to the midline and well back to the latissimus dorsi muscle. This gives adequate exposure and permits wider excision of all tissue and facilitates closure. The pectoralis major muscle is divided near its insertion, retracted downward and freed from its sternal origin. This is done early to block the passage of emboli into the mediastinum. It is usually not necessary to remove the clavicular portion of the muscle although it should be retracted upward and the loose tissue dissected from beneath. If lymph nodes are found the muscle should be entirely removed and dissection completed under the subclavius muscle. The clavicular portion of the pectoral muscle when left adds to the cosmetic appearance as it fills the depression below the clavicle.

The axillary vein is then freed of its fascial covering and the glandular and areolar tissue is completely removed from the axilla. The small vessels should be ligated close to their origin and care should be taken to free the vein of adherent glands, fascia or areolar tissue. The pectoralis minor muscle is then divided, retracted downward exposing the apex of the axilla. This region is carefully freed of its contents up to the last portion of the axillary vein. The fascial covering of the subscapularis muscle is removed and the loose tissue along the posterior axillary line and over the latissimus dorsi muscle is dissected free and removed with the breast, both muscles and all available tissue. The subscapular and long thoracic nerves are preserved when possible. The sheath over the rectus muscle is removed if the lesion is so located to indicate it. During the entire procedure the tumor mass is surrounded by a gauze tape and the dissection is done as carefully and as free from trauma as possible. All instruments used near the lesion should be discarded and not contacted with the

operative field. There should be no squeezing or rough handling of any of the breast tissue. After thoroughly washing out the operative field with warm saline solution to remove any debris or loose tumor cells, the incisional flaps are approximated with stab drainage placed in a dependent point. I believe by thoroughly flushing and washing the field before closure any contamination by expressed malignant cells may be removed. This diminishes the incidence of recurrence in the operative field. I have practiced this with sufficient comparative results to warrant this belief.

The arm of the patient is abducted and extended above the head for several days. A scar formed with the arm in this position does not limit the free motion of the arm but when the arm is left to the side much discomfort may be experienced.

Recurrence in the scar is not often but when it does occur it indicates too close approach to the field of malignancy or contamination from rough handling of the malignant mass.

Axillary recurrence may be handled by secondary dissection if discreet and localized followed by radiation or by radiation alone if fixed and matted together.

The end results are in direct ratio to the extent of the lesion, thoroughness of surgery, degree of malignancy and other factors stated. One cannot accept for surgery only those cases with limited breast involvement but is compelled and should admit all for whom some service may be rendered.

A survey of the results obtained by a number of clinics in this country and abroad gives an average of 38.6 per cent for a three year survival period and 28.9 per cent for a five year survival period.

Comparative postoperative results of cases with and without glands over a five year period from the following hospitals were, New Haven Hospital, 46.8 per cent; Henry Ford, 30 per cent; Detroit Hospitals, 24.1, and Mayo Clinic, 42.7 per cent.

Simmons et al report from the Massachusetts General Hospital 43.4 per cent five year cures following radical operation for all operable cases; 74.8 per cent for the cases in which the disease was limited to the breast and 25 per cent for the cases with axillary involvement. The conclusions were that when gland involvement was present the chances of cure were one out of four, and three out of four when glands were not involved.

Harrington reporting upon a large group of cases with no axillary involvement found 81.5 per cent alive three years after operation, 72.5 per cent five years, 50.2 per cent ten years, 36.4 fifteen years and 21.2 per cent twenty years after operation. While in those patients with axillary invasion he finds the three year group represented 41.1 per cent; five year, 26.9 per cent; ten year, 13 per cent; fifteen year, 8.6 per cent and twenty years 6.9 per cent.

Statistical records of the New Haven Hospital show the following classification of end results based upon a grouping of cellular activity, all practically without radiation: Group 1, cases with no

axillary involvement gave from three to five year cure in 28.1 per cent; group 2 cases with no axillary involvement gave from three to five year cure in 21.8 per cent, and group 3 cases with no axillary involvement gave from three to five year cure in 9.3 per cent, or a combined total of 59.2 per cent from three to five year cure against a 34.2 per cent in the various groups with involved axillary glands. A total of 46.8 per cent were alive from three to five years after operation, most of them having had no postoperative radiation.

Overhold reports 40 per cent of sixty-two cases alive and well five years after operation. Adair obtained a 40.6 per cent five year cure in 137 cases treated by surgery and irradiation. The extent of the lesion and the degree of cellular activity are the chief factors in the ultimate outcome. All investigators have found that axillary gland invasion definitely reduced their three and five year cures and that a similar experience was noted in the lesions that were the most cellular and active.

I believe that postoperative radiation should be employed almost as a routine except perhaps in those cases that are contacted early, are well localized and show a low grade malignancy and in those extremely old people who have had a long standing carcinoma that has finally broken down and a simple mastectomy has been done for obvious reasons.

Much hope was expected from postoperative roentgen ray. It was thought that the cells that were left could be easily destroyed by light roentgen ray. Disappointments occurred and many cases appeared to flare up quickly with its use, leaving the unfounded impression by some that the radiation had stimulated the remaining cancer cells. It is more probable, however, that the cases represented rapidly growing lesions that were not primarily surgical cases.

Later, more powerful radiation was thought to be the solution. This in turn brought much havoc in the form of lung fibrosis, pleural reactions, extensive skin reactions and severe nausea which impaired the patients' health, nutrition and lowered inhibitory resistance.

Each case has to be individualized and the roentgen ray tolerance determined. It should, however, be given to its maximum tolerance and centered over the supraclavicular region, the mediastinum, the lateral chest wall and the posterior axillary region.

The action of radiation on the malignant cell is not uniform or consistent. Many cancer cells are destroyed by radiation but a large group are too radio resistant to be rendered inert. In vitro, cancer cells can be destroyed but in the living radiation cannot be applied to such an extent. Extensive radiation produces reactions in the normal tissue which may inhibit normal physiological resisting barriers to the disease and permit a rapid growth of cancer cells. Cellular elements of the circulating blood in the heart and lungs may be greatly altered. Nothing can be gained by severe reactions, either

local or systemic. It is rare if ever that sufficient radiation can be given or tolerated to destroy all cancer cells.

There is ample proof that postoperative radiation does prolong life, restrict cellular activity, promote fibrosis and retention of cancer cells in fibrosed areas but whether it actually cures any case is debatable. In recurrent lesions in the axilla or those developing in the supraclavicular region ultimate cure has not resulted even from most extensive irradiation.

Portmann reports that about one year can be added to the patient's life by postoperative irradiation; that in any given year about the same percentage of the group irradiated postoperatively will die as of the group who in the preceding year were not irradiated. The five year postoperative survival of nonirradiated cases against a similar number of irradiated cases all of group 2 expressed in percentage was 38.3 per cent to 47.4 per cent.

Crile and Portmann found in a series of forty-two cases of groups 1 and 2 that after operation alone 61.9 per cent lived five years or longer and in series of fifty-eight cases of groups 1 and 2 after operation plus roentgen ray 70.7 per cent lived five years or longer, a percentage of 61.9 per cent with surgery alone against 70.7 per cent with surgery followed by irradiation, or a combined five years longevity of 67 per cent.

In a series of sixty-four cases of groups 2 and 3 after operation alone 18.8 per cent lived five years or longer, while seventy-seven cases of groups 2 and 3 after operation and radiation 31.1 per cent lived five years or longer, a combined longevity of 25.5 per cent for five years, a difference of 18.8 per cent in the surgical group as against 31.1 per cent in the operative and irradiated group.

Cases in group 1 alone showed very little difference in the irradiated and the nonirradiated group.

Preoperative roentgen ray will benefit greatly the inoperable case. It will reduce the size of the lesion and produce a marked fibrosis.

The contention for preoperative irradiation is that only about 30 per cent of the patients are cured for five years, that the trauma of surgery may spread cancer emboli, that the degree of malignancy is not determined before surgery and that radiation lessens the likelihood of emboli phenomena and reduces the degree of malignancy. There are, however, objections to preoperative roentgen ray; radiation destroys cancer cells only in a limited number of cases, the malignancy is retarded only in a relative degree and ultimate surgery is much more difficult and less thorough and healing is often retarded. The time interval between radiation and operation may permit greater damage through extension than benefit by radiation. This, however, along with the difficult technical problems can be eliminated if operation is done within a few days following extensive radiation. The beneficial effects of such brief irradiation is only surmised. Gatch states that few experienced radiologists ad-

vocate it for distinctly operable cases. It should be used in border line cases of operability, in lesions that are quite large, in lesions that present evidence of skin inflammation or edema and in large ulcerative lesions. If surgery is contemplated in the malignancy associated with pregnancy or the lactating breast it should be preceded by adequate preoperative irradiation. The real value of preoperative radiation is difficult to estimate in a distinctly operable case. Sufficient time has not elapsed since its real inception to warrant any conclusions on a large group of cases. The difference appears by some to be small and statistical errors may affect any alleged benefit.

Simmons et al showed in a series of forty-two cases given preoperative prophylactic radiation these comparative results: thirteen cases without gland invasion having preoperative radiation, 77 per cent cure; sixteen cases without gland invasion having no preoperative radiation, 75 per cent cure; twenty-eight cases with gland invasion having preoperative radiation, 25 per cent cure, and thirty-six cases with gland invasion having no preoperative radiation, 25 per cent cure.

They found that preoperative radiation did not improve the prognosis. Adair reports a 36.3 per cent five year cure by irradiation alone in a series of thirty-seven operable cases, a result which about equals the operative treatment alone.

Surgery after extensive preoperative irradiation is difficult because of the extensive fibrosis both on the chest wall and in the axilla, the line of cleavage is replaced by fibrous tissue and the pectoral muscles are adherent to the intercostal spaces to such an extent that radical resection must be done with great care because of the danger of nicking the pleura at an adherent intercostal space. It is necessary to dissect close to the undersurface of the muscle and stay as far away from the intercostal spaces as possible. The pleura may be pulled up into the field of surgery by traction on the muscle.

The axilla is dissected with difficulty and the skin flaps are hard to approximate even after extensive undermining due to skin fibrosis and a loss of the normal skin elasticity. Healing of the flap may be retarded due to diminished vascularity from arterial occlusion and fibrosis.

1016 Professional Building.

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ANATOMIC CAVITY TUMORS (ESPECIALLY CANCER OF CERVIX)

PERISCOPIC LOCALIZATION AND TREATMENT WITH DEEP AND CONTACT ROENTGEN RAY THERAPY

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Intracavity roentgen ray therapy for intra-oral and intravaginal radiation has been revised since the introduction of shock-proof roentgen ray equipment. Also the alignment of the roentgen ray beam has been simplified by the use of metal cones, either lined with lead or having a limiting lead diaphragm at the base. One piece cones rigidly attached to the roentgen ray tube holder by means of an adapter have been used generally. Sighting of the tumor to be treated during instillation is difficult with this method, but recently it has been much improved by a two piece cone which permits periscopic visualization.

With the periscopic cone not only is it possible to check the position of the cone or direction of the ray at any time during the course of treatment but it can be done without changing the position of the patient.

The size of these cones vary from 3 to about 4 centimeters in diameter, the 3.8 centimeter cone being used on the average introitus. The roentgen ray beam diverges after leaving the speculum to a diameter of about 5 centimeters. This diversion however is not enough to cause undue reaction on the vaginal walls.

Hard rubber-tipped intravaginal extension cones with obturators are used to separate the vaginal walls, increasing the diameter of the field to include the parametric structures and aid in aligning the lesion with the roentgen ray beam. Supplementary treatments are given through ports over the anterior pelvis and the gluteal region in the conventional manner. The chance of producing a vesicovaginal and rectovaginal fistula is considerably lessened with this method, and it is possible to deliver a carcinolytic dose of the roentgen ray to the parametrium. Even in advanced cases considerable improvement can be had.

The depth dose using the contact tube of Chaoul

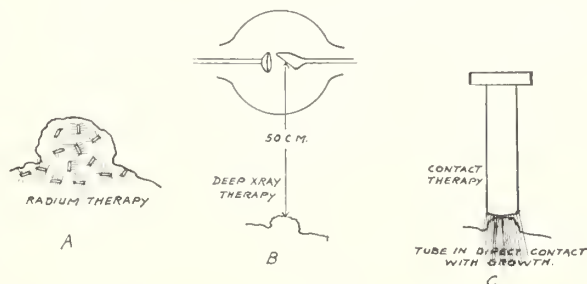


Fig. 1. A. Interstitial radiation (radon seeds). B. Deep roentgen ray therapy. C. Tube in direct contact with growth.

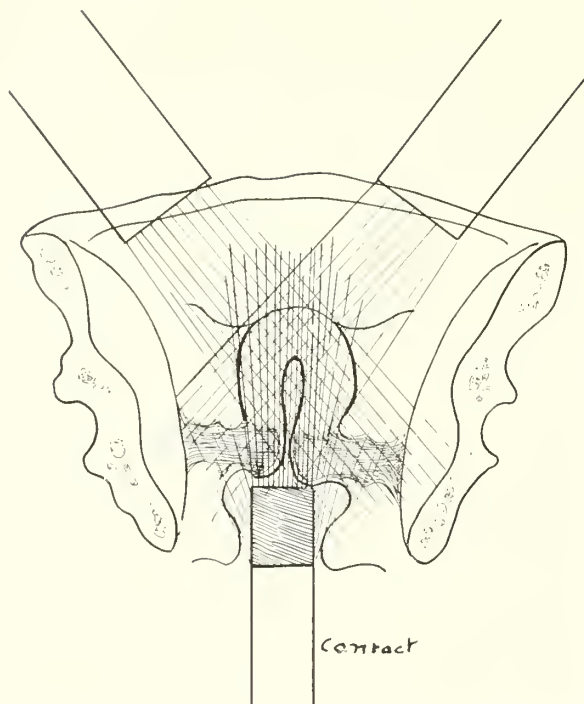


Fig. 2. Radiation is more homogeneous. No foreign body reaction or possibility of disseminating cancer cells. Direction of roentgen ray beam is under complete control.

is greater than that of radium and less than that of deep roentgen ray therapy. Therefore, this method is used in the treatment of cavity tumors so as to prevent unnecessary irradiation of the normal tissues which is the case when deep therapy is used intravaginally and externally. In other words, the normal tissues do not receive a double dose and the greater intensity of the rays is confined to the parts where it is most needed.

The limiting factor to the administration of a carcinolytic dose of roentgen ray to the uterus, or to any anatomic cavity malignancy, depends on the

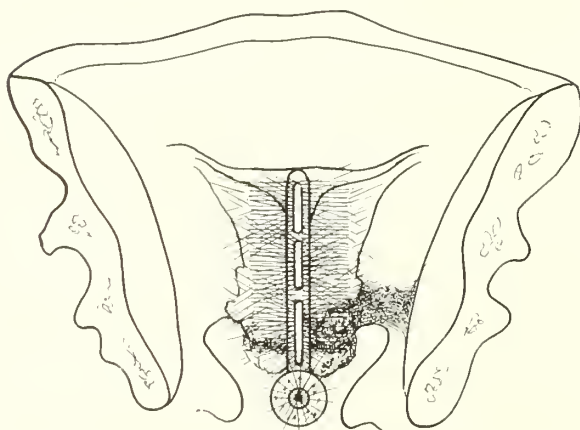


Fig. 3. Radium applicator in position. Dosage sufficient to irradiate parametrial tissues produces considerable tissue necrosis.

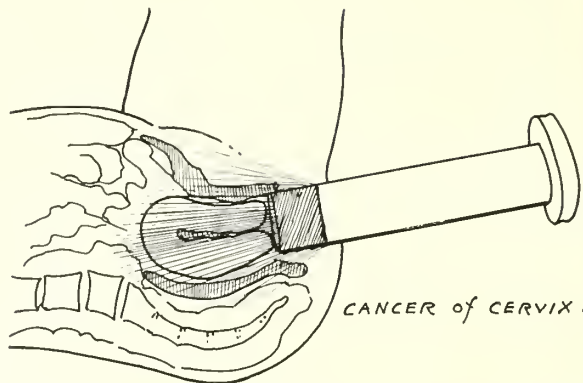


Fig. 4. (1) Contact tube in vaginal cavity. (2) Roentgen ray beam directed at parametrium. (3) Depth dose greater than radium but confined to tissues where needed. (4) Normal structures such as intestines are not unnecessarily irradiated. (5) Intracavity radiation supplemented by cross fire external radiation in conventional manner.

tolerance of the normal intervening structure, the most important of which is the skin. It is always preferable to keep as much as possible within skin tolerance and preserve the normal surrounding tissues which are necessary for subsequent repair. Today the radiologist is administering a larger skin dosage than formerly because he is becoming more tumor minded and less skin minded. At times it is necessary to produce a rather severe reaction and, after all, a deep skin reaction will not endanger the life of the patient. With the popularization of the protracted fractionated method of administration of roentgen ray therapy as advocated by Coutard and others, roentgenologists throughout the world have rapidly altered their conception of tissue dosage. In order to increase the therapeutic results it is necessary to bring the total parametric or cavity radiation to what we believe to be the carcinolytic dose. In those cases where the cervical canal is atresic and, therefore, is impossible to introduce the radium applicator, the contact therapy is especially applicable. In advanced lesions

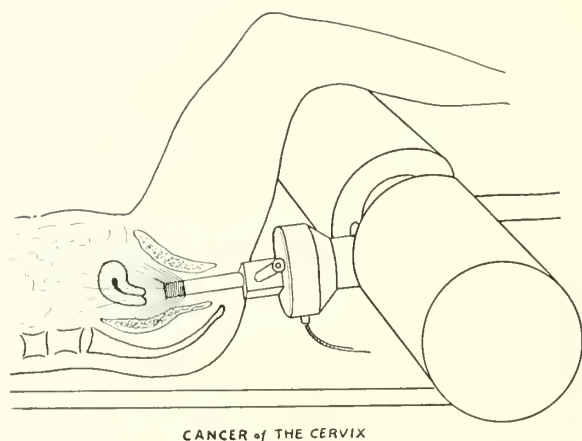


Fig. 5. Periscope visualization of intracavity tumor (cervix). (Deep roentgen ray.)

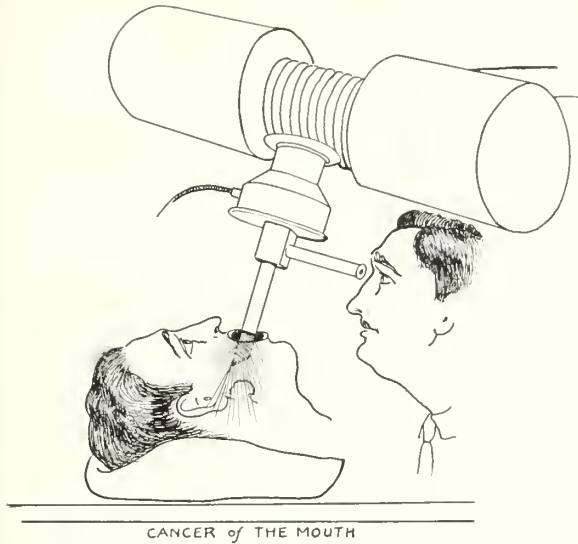


Fig. 6. Periscopic localization of intra-oral malignancy.

bleeding can be controlled in a large percentage of cases. They sometimes show marked improvement after treatment and the general condition of the patient is definitely improved. Radiation therapy adequately administered offers definite palliation in a large percentage of the hopelessly advanced cases of cancer of the cervix.

A superficial lesion is more amenable to roentgen ray therapy. Obviously, then, if a deep lesion can

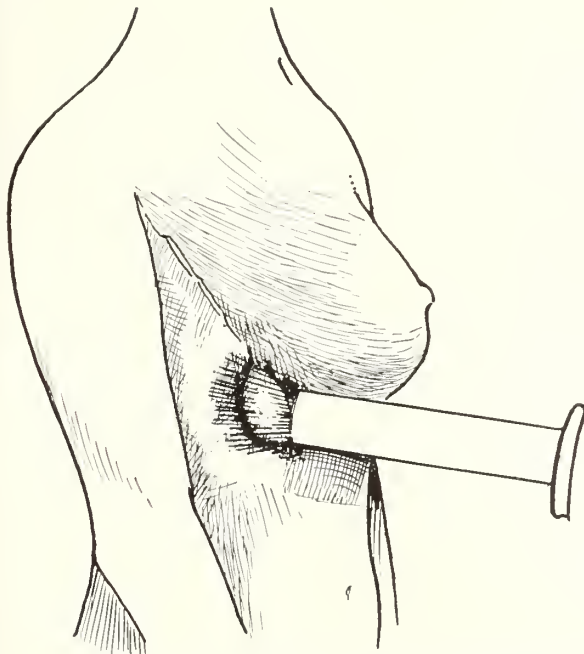


Fig. 7. Contact therapy for postoperative breast recurrence.

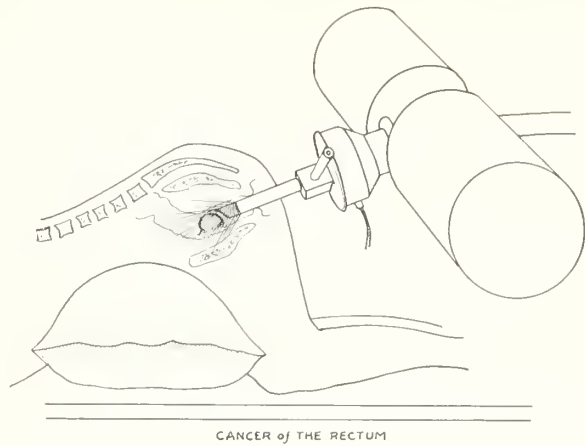


Fig. 8. Periscopic localization of cancer of the rectum.

be exposed by the introduction of a cavity treatment tube and a roentgen ray beam aimed directly at the growth without having to transverse several centimeters of normal tissues, results comparable with those obtained in the treatment of superficial lesions can be expected.

In the treatment of carcinoma of the cervix uteri this requirement is fully met for the vagina serves as an aperture through which the cervix can be exposed and the malignancy therein treated as though it were a superficial lesion.

I present this method with the sincere belief that it will materially and favorably influence the treatment of cancer of the cervix or any other anatomic tumor. In the treatment of uterine carcinomatous conditions the pelvis can be more homogeneously irradiated. Therefore, the chances of success are greatly increased and the dangers of recurrences greatly lessened.

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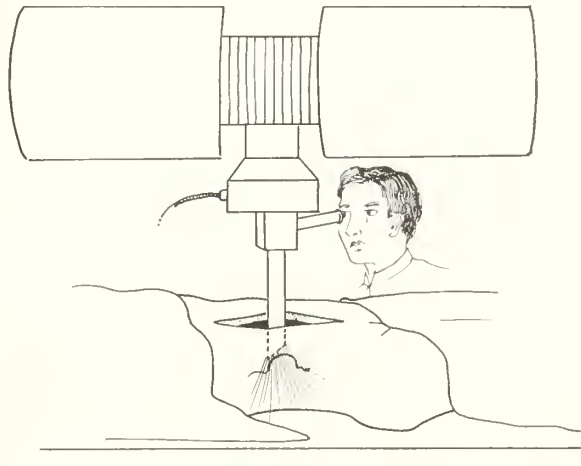


Fig. 9. Radiation of abdominal tumor after operative procedure.

SYMPOSIUM ON CANCER

PROGRESS IN MISSOURI'S INDIGENT CANCER PROBLEM

DUDLEY A. ROBNETT, M.D.

COLUMBIA, MO.

After seventeen years of constant association with the cancer problem in the State of Missouri, it is my conviction that the physicians and surgeons of this state and the hospitals, private and public, have used their best efforts to combat cancer. Unselfish work on the part of these men and institutions has carried on the work of treating indigent and well-to-do alike, fulfilling and maintaining the ideals and concepts of our profession in cancer work as in other fields of medicine. I am sure that the great majority of advanced cases among the indigents today, and I say this after five years of personal contact with them at the Cancer Clinic at Fulton and the last year at the Cancer Hospital in Fulton, are not due to lack of facilities or skill on the part of the profession but to the ignorance and fear of the afflicted individuals. The vast majority of these patients, either through ignorance or fear, have not sought advice or treatment. Seldom do they say that lack of funds kept them from asking for or receiving help.

It is true that the facilities that will be available in the near future, such as the new State Cancer Hospital, offer a needed and welcome addition to present equipment in this pressing situation. However, such additional aids are only a part in the solving of this problem and if any marked progress is to be made it must be by adding to these facilities for care and treatment a concerted well defined and coordinated program of medical and lay education.

More attention must be given to the diagnosis and treatment of cancer in our medical schools and increased opportunities for postgraduate education must be provided for our active practitioners throughout the state. It is our duty to see that our physicians are trained to look for and recognize precancerous and cancerous lesions, and that they be in a position to advise or treat their patients. Lay education, extending not only to our adult population but also into our colleges and high schools, must continue. Education corrects ignorance and dispels fear, the greatest allies of cancer.

Such an educational program was instigated by the State Association's Committee on Cancer in 1932 with the cooperation and aid of the State Association and has been carried on since that time with splendid cooperation from the Postgraduate Committee of the State Association and the Missouri Committee of the American Society for the Control of Cancer. Through the latter the Women's Field Army was organized and developed. This Army promises to expand and intensify lay cancer

education. The Field Army is a thoroughly ethical organization and operates under the supervision of the medical profession and is active only with the approval of local medical societies. Your Association has endorsed the recommendation of its Committee on Cancer for a postgraduate course in cancer and I hope it will be an outstanding feature in the new hospital.

It is not the dream of any of us interested in cancer that it will be completely eradicated for internal cancers and certain symptomless and obscure growths will always take their toll, but since some 60 per cent of all malignancies are external or readily accessible to recognition with signs that scream a warning long before it is too late, we can by medical and lay education directed along sound lines reduce the inroads of this disease.

In 1933 the Committee on Cancer of the Missouri State Medical Association established, with the cooperation and aid of the Missouri State Eleemosynary Board, an Ambulatory Tumor Clinic at the State Hospital in Fulton. In return for the use of the radium belonging to the Eleemosynary Board for the treatment of indigent cancer patients your Committee agreed to supervise and treat patients with tumor and cancer in the eleemosynary institutions. Later the law was changed and it was made possible to admit noncommitted patients for observation and treatment to eleemosynary institutions for a period of six weeks at a cost of \$27.50. At this time the Eleemosynary Board graciously set aside two beds, later increasing it to four, for indigent cancer patients. The work in the Fulton Hospital was continued on that basis until February 1938 when the new hospital building at Fulton was completed and the fifth floor with thirty-six beds and the facilities of a modern operating room, pathological and clinical laboratories and roentgen ray department and deep therapy unit, in addition to the radium, was placed at the disposal of your Committee on Cancer. Prior to this (1936) some members of our Association in St. Joseph, on their own initiative, had the Eleemosynary Board establish and equip a Tumor Clinic in the St. Joseph State Hospital for the treatment of indigent cancer patients.

All patients were admitted to the Fulton and St. Joseph clinics after certification by a member of the State Association and a member of his respective county court and another duly organized service bureau.

In 1938 the Missouri State Cancer Commission operating under the law inaugurated by the previ-

ous General Assembly took over the work at Fulton in March and at St. Joseph in May and the small charge per day was removed making the service entirely free. The same requirements for admission were retained for several months until the present admission forms were prepared. The new forms embody all possible means to exclude nonindigents. During this first year of operation four hundred and thirteen patients were admitted and treated at Fulton and one hundred twenty-two at St. Joseph. Eighty-two counties have sent patients. The original staffs at the two clinics were retained and have been augmented by radiologists, pathologists and a resident physician and are conducted in accordance with the American College of Surgeons' requirements.

As director of the Fulton Clinic from its inception until the present time, and in constant personal contact with the patients at that clinic, I am sure that every effort was made in the past to conduct the work at Fulton and at St. Joseph in the most painstaking way to prevent abuses of the indigent service, and the same effort has been maintained since the Cancer Commission has taken over the work. The splendid precedent established by the Committee on Cancer has been followed and in addition a social service department with trained

personnel has been added to the staff by the Commission to investigate and check all patients referred to the hospitals.

With the new Cancer Hospital in Columbia under construction and expected to open this year, it is a comforting thought that many of the early difficulties attending the establishment of an indigent cancer service have been solved and that this new hospital with its splendid facilities will be free to function fully from the start. The hospital is dedicated to the cause of cancer; first, the treatment of indigent cancer patients; second, the education of the medical profession in cancer recognition and treatment, and third, the promotion of research and investigation of cancer. With a competent and experienced staff the work should warrant the full confidence and approval of the medical profession of Missouri.

The cooperation of the Cancer Commission, the Cancer Committee of the State Association, the Missouri State Committee of the American Society for the Control of Cancer and the State Board of Health is assured. The support, the patience and the cooperation of the individual members of the Missouri State Medical Association will make the State Cancer Hospital the truly great institution that it should be.

THE USE OF RADON IN THE TREATMENT OF CARCINOMA

LOUIS H. JORSTAD, M.D.

AND

BRUCE C. MARTIN, M.D.

ST. LOUIS

From March 1925 to December 1936, 156 cases of malignant growth were observed at the Barnard Free Skin and Cancer Hospital, the major form of treatment for which was radon. This is a trade name for radium emanation. During the first three years radon was used in the form of glass seeds and since then in gold seeds. The glass seeds contained a radium emanation equivalent content of 1 millicurie, the gold seeds during the first five years an equivalent of 1 millicurie and since that time the content has been 1½ millicuries. During the first four years radon was used in cases of inoperable carcinoma; later it was found to be particularly applicable to a certain group of operable cases, as for instance in carcinoma of the tongue. The tongue is a mobile organ and lends itself to interstitial better than to surface irradiation despite the fact that some form of anesthetic is essential for inserting the radon seeds. The 1 milligram and 2 milligram radium cells are excellent and more economical forms of interstitial radiation but we have found them to be impractical in carcinoma of the tongue or any other part of the oral cavity

because of the continued movement of the parts. However, this form of radiation may be used successfully in cases involving the floor of the mouth and buccal mucosa where the lesion can be reached by insertion of the cells from the overlying skin surface. Of this group seventy cases were definitely hopeless from the standpoint of curability. In these hopeless cases radon was used in conjunction with other forms of radiation and surgery as a palliative measure.

As to the effectiveness of this form of treatment, we found that thirty-seven of the cases showed a complete regression of the lesion without recurrence for a period of five or more years. The group in which probability of cure was high numbered eighty-six. Thus we may calculate the five or more years "percentage cure" or "freedom from recurrence" as 43 per cent in this group of cases of squamous celled carcinoma.

Of the whole group thirty-seven or 23 per cent evidenced appreciable pain requiring sedation over a period of from one to three months following treatment. Twenty-four of these cases were carcinoma of the tongue, there being fifty-six cases with tongue involvement in the series. In other

From the Surgical Service of Dr. Louis H. Jorstad, The Barnard Free Skin and Cancer Hospital, St. Louis.

words, 42 per cent of the cases of carcinoma of the tongue evidenced pain while only thirteen of the remaining one hundred cases, or 13 per cent, complained of undue pain. In none of these cases was pain due to bone involvement either by malignancy or irradiation as radon is considered by us to be contraindicated as a therapeutic measure when it must be placed in close proximity to bone. Aside from an occasional exceptional case, the severity of discomfort and pain is in direct proportion to the amount of radon used. Pain continues until the reaction has subsided and the area involved has healed. Residual pain, i. e., pain continuing after this period as the result of irritation by the radon seeds, is most unusual. When it does occur, it is usually the result of a small abscess in the deeper lying tissue, scar surrounding a sensory nerve or recurrence of the carcinoma. It is our experience that mucosa irradiated by the removable radium cell may become equally uncomfortable or painful.

The analysis of the radon content in relation to the size of the lesion is of special interest. It is also important to consider surgery or other forms of irradiation which were used in conjunction. In seventeen of the thirty-seven cases, radon was the only therapeutic measure used. The smallest lesion, a squamous celled carcinoma of the tongue, was 1½ cm. in diameter. Ten seeds of 1 millicurie each were implanted. Repeated examinations have revealed no evidence of recurrence or metastasis to date, nine years later. The largest lesion in the group, a squamous celled carcinoma of the eyelid and antrum, varied from 6 to 7 cm. in diameter. Twelve seeds of 1½ millicuries each were used. An interesting case in this regard was No. 275 in our series which presented a mass under the angle of the right mandible. The mass was freely movable and was thought to be a metastasis. No primary lesion was found. Biopsy revealed squamous celled carcinoma (grade III). Twenty gold radon seeds of 1½ millicuries each were introduced into the lesion. Complete regression resulted and no evidence of recurrence at this site or possible primary lesion has been noted to date, six years later.

Larger amounts of radon were used when supplemented by surgery, as in a carcinoma involving one half of the tongue. Thirty seeds of 1½ millicuries each were implanted. In this group of cases which were supplemented by surgery certain findings deserve emphasis. Clinical recurrence was observed in the primary lesion in twelve cases within from one month to three years after the initial irradiation. The majority of recurrences, however, occurred within from three to five months following the original therapy. Radon was inserted into recurrent nodules at the edge of the previously irradiated area, but if recurrence of carcinoma was evident within the irradiated area the entire area was excised. In cases of tongue involvement a hemiglossectomy was done if the area was confined with a 1 cm. margin of normal tissue to the midline. A complete glossectomy was done if the in-

volvement encroached on the midline, especially if it was in the posterior one third of the tongue. In every case of recurrence at the primary site the extent of the operative removal is the same as if the lesion had not been irradiated. Histologic study of biopsy specimens was the confirmation of recurrence in these cases.

A study of the regional zone of lymphatics in this group of thirty-seven cases which lived for more than five years without recurrence reveals that ten cases presented clinical evidence of metastasis in from two months to three years following treatment of the primary lesion. Resection of the lymph-bearing tissue was done in these cases. The primary lesions were of the tongue, oral mucosa and face. Of these ten cases, only three revealed definite carcinoma in the lymph nodes histologically.

In this group of cases considered as "no recurrence for five years," the time interval is dated from the period of re-irradiation if that was done.

In a study of the forty-nine cases that were in the "not hopeless" group yet died from cancer within five years, it is noted that twenty-one cases or 42 per cent of the "possible cure" group were cases of carcinoma of the tongue. All these developed recurrences or showed incomplete regression and died as the result of the recurrent lesion combined with metastasis. The remainder of the cases in this group were of the buccal mucosa, tonsil, pharynx, larynx, floor of the mouth, palate, lip and urinary bladder.

CONCLUSIONS

1. Forty-three per cent of a group of cases of squamous celled carcinoma showed no evidence of recurrence from five to twelve years following instillation of radon into the primary lesion.
2. The gold radon seed induced no significant residual pain in this group of cases.
3. Radon is of no significant value in the treatment of metastasis.

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UNSAFE RABIES VACCINATION METHOD

The single injection method of vaccinating dogs against rabies is unreliable and should not be depended on, Benjamin F. Hart, M.D., and Elwyn Evans, M.D., Winter Park, Fla., report in *The Journal of the American Medical Association* for Feb. 25.

They cite a patient of theirs, a white man, aged 41, who was bitten on the upper lip by a neighbor's dog while attempting to retrieve his own dog during a fight. Because both dogs had been vaccinated against rabies six months previously, by the single inoculation method, he did not consult a physician.

Twenty-two days later the symptoms of rabies appeared and twenty-four hours later a physician was called because of a "mild digestive upset with vomiting and a generalized headache." Since there is no known specific drug for clinically developed rabies, sulfanilamide was tried but it did not halt the progress of the disease. The man died.

MEASURES FOR IMPROVING CLINICAL RESULTS IN THE TREATMENT OF CARCINOMA OF THE UTERINE CERVIX

A. N. ARNESON, M.D.

ST. LOUIS

Inspection of statistics on clinical work on cancer of the cervix published less than a decade ago reveals marked uniformity of results despite the different technics of irradiation¹ employed by the various clinics. The average five year cure rate ranged from 22 to 25 per cent in most of the reports. Explanation of the uniformity of the statistics does not lie in the fact that all methods produce equal results but in the more or less uniform radius of the effect of radium applied to the cervix. An intra-uterine tandem containing radium will, in most instances, destroy carcinoma in the primary lesion. At the same time there is general agreement that a tandem will not control disease located at distances greater than from 3 to 4 cm. from the cervical canal. The radius of effect can be improved by employing an intravaginal application in conjunction with the intrauterine radium. However, carcinoma in the lateral portions of the parametria, iliac nodes or other outlying tumor-bearing regions cannot be treated adequately by any combination. It is obvious, therefore, that cures will be obtained only in patients with early lesions or with lesions that show but a moderate degree of advancement. This has been proved by clinical experience. More than half the patients with lesions favorable to cure survive the five year period, but fewer than from 10 to 15 per cent of advanced cases are cured. There are exceptions in single instances, notably those with extremely radioresistant tumors and those with tumors of a markedly radiosensitive character.

Two possibilities for better results are obvious. One is by improvement in clinical material. Early diagnosis combined with prompt and adequate treatment would result in a definite increase in the percentage of cures. Extensive programs of lay education are being fostered to disseminate information that early cancer can be cured. In some states there already has been a decrease in death rate for certain types of malignant disease. Full value of the program has not yet been determined.

The other possibility for better results is by improvement in methods of treatment. Some believe that advance in the treatment of cancer of the cervix will be by improvement in methods of roentgen irradiation. There have been many changes in the electrical apparatus used for roentgen ray treatment. Higher voltages are employed. There is the so-called Chaoul or contact method of irradiation, and some clinics employ the transvaginal or direct

roentgen treatment for cancer of the cervix. There is evidence that all these methods will improve clinical results by providing greater flexibility of treatment. Perhaps the greatest improvement has resulted from the use of protracted courses of multiple exposures (divided dose technic) in which large total doses are delivered to the tumor-bearing region by daily treatments given over a period of three or four weeks.² This technic can be followed with any of the special types of apparatus mentioned or in clinics operating the conventional roentgen ray machine in common use (200 kv.). The divided dose method of roentgen treatment has been used in some clinics for six or seven years. There is evidence that some of these clinics will report five year survival rates of about 30 per cent.

Despite the limitations to the dose of radium that may be administered there would seem to be some possibilities for improving the technic of treatment. An intra-uterine tandem can be used for 3000 milligram hours of radiation in most instances. To increase the dose to 5000 or more milligram hours results in an excessive amount of local necrosis without any marked improvement in the parametrial dose. A better distribution of radiation can be obtained by combining a tandem used for 3000 milligram hours with an intravaginal application delivering about 2000 milligram hours. Diagrams have been published showing the distribution of radiation for different methods of applying radium to the cervix.³ From these diagrams it is obvious that the use of several different sources of radium presents a more practical method of treatment than the use of only one or two tubes of radium. By means of "cross fire" from several sources the tumor will receive a greater total dose without any single tube delivering an amount that will produce excessive necrosis. There is not only the risk of severe infection and persistent radiation ulcer following extensive necrosis but destruction of the tumor bed may result in rapid and uncontrolled growth of the carcinoma.

The most obvious method for increasing the number of sources of radium employed in treatment is the use of needles inserted into the tumor. The experience of some gynecologists, however, has indicated that this method may not be practical due to the occurrence of severe and untoward reactions and the possibility of introducing infection by the insertion of needles. Two factors seem to have entered into the bad results, the use of lightly filtered needles containing relatively large amounts of radium (10.0 mg. or more), and the use of interstitial irradiation before infection in the lesion is

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decreased. Evidence that needles can be used successfully is found in reports by Ward and Sackett.⁴ A different technic has been published by Pitts and Waterman.⁵ They insert long needles containing only 3 or 4 milligrams of radium into the parametrial and paracervical tissues. The interstitial sources are used for periods of from five to seven days in conjunction with an intra-uterine tandem containing a small amount of radium. Their statistics are among the best that have been published for cancer of the cervix. Upon the basis of these results we have treated a number of cases of primary and recurrent cancer in a similar manner.⁶ The results up to the present have been very satisfactory but sufficient time has not elapsed to permit the publication of statistics on a five year period.

The aim of radiotherapy is to deliver an adequate dose to the tumor-bearing region with a minimum of damage to normal tissues. Individualization of treatment for each patient is essential in the attempt to improve methods of irradiation. Only by that means can one select a method that will deliver a distribution of radiation best suited to the lesion in question. Both roentgen rays and radium are needed in the treatment of cancer of the cervix. Marked advance has been made in the electrical apparatus used for generating roentgen rays. Protracted courses of multiple exposures has resulted in the administration of greater total doses to the tumor-bearing region. The amount contributed by roentgen rays tends to increase the radius of effect for radium. It is important that external irradiation be given first. By that means infection in the lesion can be reduced. The preliminary course of roentgen rays also facilitates the application of radium at a later date by regression of the local lesion. The use of an intra-uterine tandem alone is inadequate in most instances. Every effort

should be made to employ as many different sources of radium as possible. Irradiation from multiple foci will improve the tumor dose without increasing the risk of necrosis resulting from the amount contributed by any given tube. In many instances interstitial irradiation (needles and seeds) presents the most logical means for increasing the number of sources of radium employed in treatment. Adequate treatment of outlying tumor-bearing regions presents a serious problem. Mention should be made of iliac lymphadenectomy performed by Taussig⁷ in the attempt to remove by surgical means foci of involvement beyond the radius of effect for roentgen rays and radium.

In the treatment of all types of cancer the importance of early recognition of the disease cannot be overemphasized. Improvement in clinical material presents a logical method for increasing the percentage of cures obtained over a widespread area. Programs of lay education can be disseminated only through medical assistance. They deserve the full cooperation of all physicians in the attempt to decrease the present death rate for cancer.

3720 Washington.

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TREATMENT OF CANCER OF THE LIP

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The cancer therapist has some satisfaction in the results which may be attained by the proper treatment of epithelioma of the lip. Although good results may be and are attained, still they should be better for several reasons. The early lesion is located in a region where a small keratosis or ulcer scarcely can pass unnoticed. There is therefore little excuse for the early lesion to lack early adequate care which will give at least 95 per cent cures. However, this very ease with which treatment can be given often leads the inexperienced to give inadequate treatment to the local lesion or to neglect the fact that even early cancer of the lip may metastasize to the neck. It is not at all uncommon to see metastatic nodes in the neck of a patient who had the local lesion controlled at some

former time but the tributary lymphatic areas were neglected. Either the patient did not have a neck dissection if one were indicated after therapy of the local lesion or if it were deemed unlikely that metastasis would occur, the patient was not kept under observation. It not uncommonly happens in such cases that before the patient returns for therapy, if metastasis does occur the nodes in the neck have become fixed to some surrounding structure. If this happens experience has shown that in most instances any type of therapy is only palliative in nature or even totally useless. Thus, too often epithelioma of the lip is treated by the therapist as solely a problem of treating the local lesion, a narrow and wrong viewpoint in the therapy of any malignant lesion.

TREATMENT OF THE LOCAL LESION

It is now well recognized that in any large series of cases of epithelioma of the lip the results insofar as controlling the local lesion is concerned are about the same whether proper irradiation methods or proper surgical methods are used. However, depending on situation, type, extent and the condition of the patient, in many cases irradiation therapy and surgical therapy have fairly definite respective indications and sometimes both types of therapy may seem to be indicated.

From the standpoint of therapy, roughly one may divide the local lesions into five groups.

(1) *The keratotic lesion which may extend along as much as a half of the junction of the vermillion border of the lip with the skin.*—In this type it is usually evident that keratotic leukoplakic reaction has been present for some time along the lengthwise extent of the lip. In some of these cases it may be difficult to state from clinical examination alone whether or not cancer exists. I believe the indication in this type of lesion is excision of a strip of mucosa all along the edge of the lip. Whenever there seems to be some thickening, one should go fairly deep. (Fig. 1, a, b.) If the pathologist states that no malignancy exists all is well and good and the patient has had an area removed which eventually would probably have shown cancerous degeneration. If, however, according to the pathologist, there is some early evidence of cancerous degeneration a dose of radium may be applied to the proper area in the same manner as one would apply it for a definite cancer. The results of this type of excision are imperceptible.

(2) *The small fairly well localized lesion of from 0.5 to 2 cm. in diameter.*—The end results in this type of lesion will not differ materially whether one does a proper V-shaped excision or whether one properly applies radium or even roentgen ray. Treated by either method the local lesion should be cured. If one has radium possibly it is preferable to use it as radium usually will give an almost perfect result. (Fig. 2, a, b.) However, especially if finances

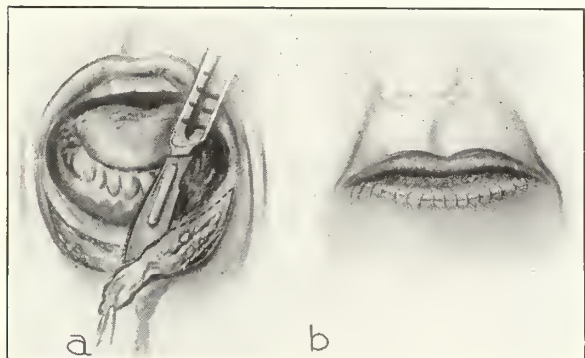


Fig. 1. Method of excising a leukoplakic affection of the lower lip which is usually located right at the junction of the vermillion border with the skin. Often it is difficult to tell whether this lesion is leukoplakia or an early malignant degeneration. If excision is done properly in (a) the patient will be cured of the precancerous lesion and in (b) the patient will be cured if the excision is sufficient.



Fig. 2. (a) Lesion before application of radium. (b) Lesion after application of radium.

are involved, a proper V-shaped excision may be done in the office under local anesthesia and cosmetically in a few months the scar should be practically indiscernible and function in no way will be handicapped.

In a case of this type, if the lesion is somewhat large for a simple V-shaped excision, wide excision with the immediate switching of a flap from the upper to the lower lip will give a good result. (Fig. 3, a, b, c.) This cannot be done in the office but may be done under local anesthesia with a relatively short hospitalization period.

(3) *The rather diffuse ulcer extending somewhat superficially along a considerable part of the upper lip.*—If one excises this type of lesion sufficiently, it practically means that one will have to rebuild a considerable part of the lower lip. Therefore, if the deformity would seem to be only slight because of the depth of the excavation after control by radium, I believe that an easier and possibly a better result will be obtained by the proper application of irradiation.

(4) *The type of diffuse lesion in which the excavation is so great that it is evident, even if one did control the lesion with irradiation methods, that a considerable defect must remain which will eventually require a plastic operation to correct.*—I believe the best therapy in this type of lesion is wide excision with either immediate (fig. 3, a, b, c) or later (fig. 4, a) plastic repair as may seem indicated. The reason is that it is difficult to repair a lip after intensive irradiation. Several times I have found it almost impossible, especially if the bone has been much affected by the irradiation.

After wide excision often I have switched flaps from both sides of the upper lip immediately. An almost complete lower lip can be built at the time of the excision by this method. The operation may be done under local anesthesia and the hospitalization period should be short.

(5) *The lesion which is fairly well fixed or has already involved the bone.*—In this type of lesion I believe radical excision followed by a thorough cauterization of the bone so that a considerable portion of it is caused to sequestrate will give by far the highest percentage of cures. Irradiation methods do little to control squamous cell epithelioma in bone and if a sufficient dosage which may be lethal is applied the painful periostitis and degenerative effect upon the bone (even if a complete radio-



Fig. 3. A fairly diffuse lesion. In this case the excavation is not as deep as might be considered under this category but it does show how a large part of the lip may be excised and be immediately repaired by a flap from the upper lip as shown in (c). The original lesion is shown in (a) and the lip three weeks after excision of the lesion is shown in (b).

necrosis does not occur) cause a definitely unpleasant situation for the patient and a difficult one for the surgeon when it is necessary to do a plastic repair.

THE CARE OF THE TRIBUTARY LYMPHATICS

So-called prophylactic irradiation has been suggested as of some value but the evidence for this conception is nil. Theoretically, one would not expect a sublethal dose to be curative for adult squamous cell carcinoma in the lymph nodes. Prophylactic irradiation as yet is a snare for the uninformed to hide behind fooling themselves with the belief that something has been done. It may be that a thorough Coutarding of the neck would be effective in certain instances. However, if cancer appears later a neck dissection is impossible and contraindicated as a rule because of the deleterious effects the intensive irradiation has had upon the subcutaneous soft tissues.

Although I do not believe that routine neck dissection for epithelioma of the lip without palpable nodes is now necessary, on the other hand I do not believe that the so-called "conservative" treatment should by any means always be practiced if one is to do the most for the majority of patients. A middle way policy is the preferable one. However, even by using all the clinical and pathological data at one's command, if the clinician uses this middle way policy he will have some surprises at either end of the question.

WITH NODES NOT PALPABLY INVOLVED

In reaching a decision in regard to excision of the tributary lymphatics the following points should be considered.

(1) *The size and state of advancement of the local lesion.*—When the lesion is small and in an early stage, the chances that invisible metastasis have occurred are very slight. In the older person especially neck dissection is scarcely necessary and in younger persons the chances of there being metastasis may be so slight as to render neck dissection a questionable undertaking. When the lesion is fairly large and has grown rather rapidly, I believe the patient is better off if a neck dissection is done before palpable nodes have appeared and after neck dissection I believe it may be good therapy to give fairly intensive postoperative irradiation. Now one can carry the dosage fairly

high so that it possibly may be lethal for squamous cell carcinoma.

(2) *The pathological picture of the lesion.*—The pathological picture and the clinical picture should coincide. Thus, as previously stated, when the lesion is fairly well developed in extent and the pathological picture shows it to be moderately active, I believe early neck dissection is the wiser procedure to follow. I have seen a few cases of carcinoma described as group 4 (usually at the corner of the mouth) in which I believe the chances of the patient would be better if his tributary lymphatic areas were thoroughly irradiated by the Coutard method than if block dissection were done. At least a neck dissection was futile. When the pathological report is Grade I Broders and the clinical findings indicate that the pathological report is correct (as they practically always do) there is probably no reason for doing a neck dissection.

(3) *The age and general condition of the patient.*—Often cancer of the lip in very elderly persons is of a fairly low grade. When the cancer is in an early stage and the patient is elderly a neck dissection probably is contraindicated. A few patients will be seen whose general health contraindicates any further operative work.

(4) *The percentage of probable eventual metastasis for a given type of lesion.*—The evidence of the percentage of probable metastasis is difficult to obtain but probably about 15 per cent or slightly more of cancer of the lip will develop metastasis either while under treatment of the local lesion or some time after the lesion is controlled. Every one sees a considerable number of cases of metastatic neck cancer after the local lesion has been healed. Since the advent of radium, nearly half of the neck dissections (taking oral cancer as a whole) that I have done have been on this type of case.

(5) *The probable mortality of bilateral submaxillary neck dissection.* The mortality of a bilateral submaxillary triangle and submental triangle neck dissection should not be over 1 or 2 per cent in the properly selected cases and the disfigurement is practically nil. (Fig. 4, b.)

(6) *If invisible metastasis is present, does early neck dissection increase the percentage of cures?* The probability is that if invisible metastasis is present a neck dissection is of avail. The evidence here must be indirect but probably about 20 per

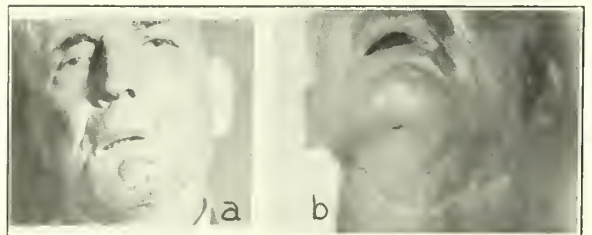


Fig. 4. (a) The result of an immediate plastic repair of the lower lip after excision of most of the lower lip. (b) The scar remaining after a bilateral submaxillary dissection.

cent of patients with known cancer in the glands will survive for five years after neck dissection. It would seem that the sooner a neck dissection is done the greater is the probability of success if the lesion is not of excessive malignancy.

(7) *Can one follow the patient for a long enough time?*—If one decides on conservative treatment of a relatively benign appearing local lesion, is the patient intelligent enough, or so located both from the standpoint of distance and economics that he can be observed adequately, often enough and long enough? This point becomes important when it is taken into consideration that from one third to one half of the patients treated conservatively cannot be followed through five years, even with a good follow-up system. Thus, when it is probable that one will not be able to follow the patient effectively one would be warranted in doing the most that can be done at one time. On the other hand, if the patient is intelligent, cooperative and realizes the gravity of the situation one might be warranted in tending toward conservatism on the basis that the neck dissection can be done immediately as soon as the smallest node appears.

WITH LYMPH NODES PALPABLY INVOLVED

When the nodes are palpable but freely movable, the method of choice is block dissection of the neck and at least the group of lymphatic glands adjacent

to those involved should be removed also. In cancer of the lip bilateral resection may be effective. I have one patient who has lived twelve years who had a node about 2½ cm. in diameter in each submaxillary triangle when the neck dissection was done. Sometimes when a submaxillary node is attached to the mandible, excision of the node plus a lengthwise partial segment of the mandible may change an otherwise hopeless situation into one with some chance of recovery. One cannot always be certain by palpation when a cancerous node is free from the carotid artery. If the cancerous node is free something may be done for the patient. If on exploration, however, it is found that the node is not free and that it is fixed to the carotid artery or some other similar structure, radium needles or radon seeds may be inserted under direct vision and may be of some palliative value in taking care of those cells that may have been left. When the nodes, upon external examination, are evidently fixed to the carotid artery direct insertion of radium needles or radon seeds into the mass may be of palliative value.

In conclusion, one may state that cancer of the lip when properly treated has a favorable prognosis. Of course, statistics tell one little unless the particular degree of advancement of the lesions under question is known.

1316 Professional Bldg.

CANCER OF THE BREAST

W. E. LEIGHTON, M.D.

ST. LOUIS

Cancer has occupied second place as a cause of death in the United States since 1927. There are about 150,000 deaths from cancer yearly. Of these about 10 per cent are due to cancer of the breast. On the basis of three living cancer patients for each death, it is estimated that there are about a half million cases of cancer in the United States annually.

Patients are being admitted to our hospitals in Missouri in the late stages of the disease in the majority of cases. Investigation of the reasons for the delay showed the fault to be with the patient, the physician, or a combination of both in 74 per cent of the group. It would seem, therefore, that anti-cancer propaganda for the lay public must be made more effective if we are to expect patients to seek medical advice at an earlier date. On the other hand, this will be of no avail unless more strenuous propaganda is carried out within the medical profession so that the general practitioner will suspect cancer more frequently and refer the suspected case to a surgeon or hospital well qualified to diagnose and treat cancer.

Simmons and Daland analyzed the cases of malignancy entering the Massachusetts General Hospital

from 1917 to 1918 and from 1921 to 1922 and found that in cases of cancer of the breast alone there was an average delay of 11.4 months and 12.4 months respectively.

A recent survey by Smith of patients admitted to the Presbyterian Hospital in New York because of breast cancer showed an average delay of 10 months. A survey of the records of The Barnard Free Skin and Cancer Hospital in 1930 showed that patients with cancer of the breast wasted approximately 10 months before applying for treatment. During the two year period, 1937 and 1938, patients were admitted to The Barnard Free Skin and Cancer Hospital with a history of an average of 14.61 months delay before seeking advice.

Several years ago I attempted to analyze the reason for so many inoperable cases of cancer and found that procrastination on the part of the patient or physician who first saw the patient was the cause of the delay in applying to the hospital for treatment. Two outstanding fallacies regarding cancer are held tenaciously by many people. The first is that cancer is an incurable disease, a belief which is also shared by too many physicians. The second is that the presence of cancer signifies to some peo-

ple a social disgrace and for this reason many patients will conceal the disease from their family and closest friends until it is so far advanced that pain and other symptoms compel its disclosure.

ETIOLOGY

Cancer of the breast usually occurs after the age of 40, 50 per cent occurring between the ages of 40 and 50, but it may occur at a much earlier period. Numerous cases have been reported in the decade between 20 and 30 years and only recently I saw a cancer of the breast in a young Negro girl of 24. While some report that it is a rare disease in the African Negro we have seen many cases. No race is exempt. The Chinese are reported to have the highest incidence due to binding the breast and early weaning of their babies. It affects equally women who have borne children and nulliparae, and both breasts are equally affected. The question of heredity is of doubtful significance. Cancer is frequently attributed to irritations such as ill-fitting corsets and injuries are often cited as a cause. The courts of the United States have recognized the relationship between trauma and carcinoma. Handley reported a case of traumatic carcinoma of the breast which was legally established in the English courts and Behan gives many references.

Disturbances in the function of the breasts are of importance in the light of recent investigations, and the part played by chronic cystic mastitis as an etiologic factor may be more readily explained.

In recent years Sir W. Sampson Handley has advanced his theory of lymph stasis as described in his book "The Genesis of Cancer."

That stagnation of milk may be the principal factor in the production of mammary cancer is indicated by Bagg's success in the production of mammary cancer in mice. In animals which breed rapidly he caused marked distention of ducts and acini and frequently carcinoma by withdrawing the young or by ligating the ducts. The study of the whole breast, especially in large sections such as Cheate employs, often brings out in a striking manner the effects of stagnation and its relation to carcinoma. In these cases one finds leading from the nipple, first, distended ducts, then papillary adenomas, next adenocarcinomatous proliferation and finally, in the outskirts of the obstructed area, infiltrating carcinoma. An astonishing degree of stagnation of milk is often found throughout the breast, clinically and upon dissecting, in cases of carcinoma in younger women. Ducts distended with inspissated secretions are rarely absent in the outlying breast in carcinoma patients and not infrequently one finds this stagnation only in the zone leading to the carcinoma.

Since stagnation and decomposition of milk is a concrete and largely preventable matter, attention may well be directed, for the present, to this probable factor in the effort to prevent mammary cancer.

Trout analyzed 300 case histories which seemed to bear out this theory and made some practical suggestions which might prevent the development of precancerous conditions of the breast.

Before the age of puberty the female breasts resemble the male in that it possesses ducts but no acini. At puberty the female breast undergoes a great structural change; the ducts commence to branch and the termination of the smallest branches expand into acini. Many of the acini are so crowded with cells as to appear quite solid and of course are functionless.

During pregnancy and still more during lactation, the morphological change is remarkable; the gland becomes the seat of an extreme epithelial hyperplasia, the acini are enlarged, large numbers of new acini are formed, the epithelium changes from the cubical to the tall columnar form and the lumen of the acini may be crowded into fern-like epithelial projections. It is a picture of unbounded epithelial activity although differing from that of carcinoma in that the activity is restrained and orderly.

There can be no doubt but that other stimuli than puberty, pregnancy and lactation can affect the breast. The literature contains many examples of the breast showing signs of activity and even lactation in quite young girls. The relation between the pelvic organs and activity of the breast is undoubted. When both ovaries are removed before puberty the breasts fail to develop. Ovulation and the formation of the corpus luteum exert a potent influence on the breast. In many women there is a tenderness and swelling of the breast at each menstrual period and in some cases actual lactation. There is a marked histological difference between the breast during menstruation and the same organ in the intramenstrual period. Rosenberg has shown that coincident with ovulation and the formation of the corpus luteum there is a rapid formation of new lobules or acinar tissue from the epithelium of the small ducts. When impregnation does not occur these new lobules disappear. When ovulation ceases, the breast passes into a condition of involution.

After hyperplasia comes involution which is most marked after lactation and at the menopause, the latter being known as senile involution. It also occurs after abortion or pregnancy without lactation. Indeed, whenever physiological hyperplasia occurs, it will be followed sooner or later by involution.

An involuting breast is one which varies greatly in appearance in its different parts for neither evolution nor involution appear to affect the organ in a uniform fashion. The picture is one of a mixture of atrophy and hyperplasia. Speaking generally, there is an atrophy of the parenchyma with an increase of the fibrous tissue. The columnar cells become flattened, the acini return to their former size and after the menopause disappear entirely. The periductal fibrous tissue may be thickened markedly in the senile breast. Dilatation of the ducts and of some of the acini is common with

the resulting formation of small cysts. It appears probable that this dilation is not due, as is commonly taught, to obstruction of the ducts from fibrosis but is rather an initial increase in size at the time when the acini were enlarging during hyperplasia. Having failed to return to normal size and being emptied of its hyperplastic epithelium, it appears as a cyst. Cyst formation may be looked upon as evidence of hyperplasia followed by involution rather than retention due to obstruction. Round cell infiltration around the ducts is seen at various sites. It has been suggested that retained secretion may act as an irritant and cause a mild degree of inflammation.

In contradistinction to the process of normal involution there is a process of abnormal hyperplasia-involution. It may be abnormal in that it occurs at an unusual time before the menopause or apart from lactation. It may be abnormal in degree and quality or, as is more important, to the stimulus which calls it forth. Again the changes are atrophic and hypertrophic. In the hypertrophic changes may be noted proliferation of the acini which vary in size and there is a proliferation of the epithelial cells. Cyst formation is common and papillary masses of epithelium often project into the cyst giving rise to tumor like formation. The chief microscopic picture is epithelial hyperplasia, while the chief macroscopic lesion is cyst formation.

From the general picture it will be gathered that the breast is an organ liable to fluctuation in functional activity and to corresponding morphological changes; that hyperplasia may completely alter the normal appearance of the gland; that hyperplasia may affect one part of the breast and not another; that when involution follows hyperplasia the picture will be still further complicated; that the breast does not return after hyperplasia and involution to a morphological condition which is perfectly normal; that hyperplasia bears a certain resemblance to tumor formation and may be easily mistaken for it, and that cyst formation is to be expected as a result of the hyperplasia-involutionary process.

PATHOLOGY

Carcinoma is a disease of the involuting breast, commonest at the time of the menopause and rare before the age of 35. It may, however, occur at any time after the twentieth year and may last for five, ten or fifteen years.

Spontaneous recovery has been known to occur even after widespread secondary growths have appeared.

As is natural in a complex organ like the breast, the tumor presents marked variations in physical appearance, rapidity of growth and histological arrangement. As a consequence, a great number of names have been applied to different varieties. Deaver and McFarland give a list of fifty-four names which they have found in literature. In general terms we may say that carcinoma may be spheroidal

celled or columnar celled. The former arises from the epithelium of the acini and is a carcinoma simplex; the latter arises from the epithelium of the ducts and is an adenocarcinoma. In adenofibroma the proportion of connective epithelial tissue may vary markedly giving rise to variation in the physical character of the tumor. The same is true for carcinoma; the fibrous tissue is so abundant that the epithelial hyperplasia appears almost as secondary. Such growths are called hard or scirrhus carcinomas. Or the tumor may be highly cellular with comparatively scanty connective tissue. This is a soft encephaloid or medullary cancer. When the epithelial cells are arranged in a tubular fashion, an adenocarcinoma results. Colloid degeneration may occur in any of the forms.

Carcinoma of the mammary gland is the most common type of cancer with which women are afflicted. It may form large, rapidly growing masses or small dense nodules; be sharply circumscribed or diffusely infiltrating, spreading slowly in the connective tissue and rapidly in the lymph vessels and within the ducts. It may invade the overlying epidermis or the pectoral muscle beneath. Extension to the axillary lymph nodes is a common occurrence and often takes place early in the disease. Mallory mentions one case in which a cancer 1 cm. in diameter was present in the nipple and the axillary lymph nodes showed extensive infiltration.

SURGICAL TREATMENT

The radical operation for cancer of the breast dates from the epoch making paper of Wm. S. Halsted of November 2, 1894. The principle enunciated at that time established not only the essential factors necessary for the eradication of cancer of the breast but paved the way for the more radical operations for cancer in other parts of the body such as the radical operations for cancer of the lip, penis, tongue and uterus. Halsted's work followed the researches of a large number of investigators in breast surgery.

Up to the year 1860 cancer was generally accepted as a constitutional disease and it was thought that little could be hoped from surgery. That there were a few dissenters to this opinion is found in the writing of Sir Astley Cooper and Velpeau.

Cooper in discussing the anatomy of the mamma described scirrhus cancer as having roots running from the primary tumor and stated that operation to be effective must include removal of the roots.

Velpeau, prior to 1860, reported a number of patients with cancer of the breast living and well from three to five years and longer following operation and by observation in his own experience showed unquestionably that cancer of the breast was curable.

To Sir Chas. Moore of London belongs the credit for first suggesting a radical operation which he did in a paper published in 1867 disputing the constitutional theory of cancer. He advocated removing the axillary glands and fat, the fascia covering

the pectoral muscles and any part of the pectoral muscle involved together with the breast. He also taught the advisability of the removal of the tissues en masse without cutting across the infiltrating areas. This remarkable paper was entirely ignored by English surgeons but stimulated Continental surgeons, especially the Germans, and we find the names of Waldeyer, Heidenhain, Volkmann, Küster and others contributing to the growing knowledge of the disease.

Studies of the lymphatic drainage of the breast by Waldeyer and the pathological investigation of Heidenhain on the fascia and muscles proving the early involvement of fascia and muscles contributed to the gradual evolution of the complete and truly radical operation twenty-seven years later with which the names of Halsted, Willy Meyer, Volkmann and Sir W. Watson Cheyne will always be associated.

A comparison of the statistics prepared before Moore's paper and the intermediate period or evolutionary stage of the radical breast surgery with those in the era following the adoption of the radical operation of Halsted is both interesting and instructive.

Table 1. *Statistics on Cure*

Years Recorded	Surgeon	Per Cent of Cures	Number of Years of Cures
1867 to 1878	Winniwarter	4.7	3
1874 to 1878	Volksmann	11.0	3
1871 to 1885	Kuster	21.0	3
	Gross	21.0	3
	Banks	21.0	3
1877 to 1886	Schmidt	18.0	3
1885 to 1893	Joerss	28.0	3
1889 to 1894	Halsted	45.0	3
	Warren	33.0	3
	Willy Meyer	35.8	3
	Halsted	38.3	3
	Halsted	35.0	Total cures
1902 to 1912	Judd and Sistrunk	44.0	3
		29.0	5
1912	Deaver	34.0	3
		25.0	5
1911 to 1926	Greenough	36.7	5
1912 to 1928	Clopton	40.0	5

In 1878 Billroth had only eight cures in 143 cases of breast cancer, or 5.6 per cent of cures. Other statistics appear in table 1.

In the period before radical operations only from 4 to 5 per cent were cured. In the evolutionary period with a better understanding of the disease and a more extensive operation there was a higher percentage of cures, and with the advent of the radical operation the five year cures have risen to about 40 per cent.

A study of some 2300 breast tumors shows that 1892 patients with breast cancer were admitted to The Barnard Free Skin and Cancer Hospital up to January 1, 1939. Various types of operation were employed including several shoulder girdle amputations. A number of our earlier cases which were operated on are still alive but as our social service did not function until 1924, there is no complete follow-up of our earlier cases. During 1927 and 1928, fifty-two patients had a radical breast operation; twenty-eight of these died of a recurrence and twenty-four or 46.1 per cent were living at the end of five years. Of 120 cases traced since 1918, forty are still living, a total of 33.3 per cent.

No attempt has been made to tabulate the percentage of cures in groups in which the breast alone was involved and of those with axillary metastasis. A comparison of the statistics of various hospitals where radical surgery is performed in breast cancer shows practically similar results. In the statistics presented at the Congress of Surgeons in Chicago in 1933, the percentage of five year cures in those cases in which the breast alone was involved varied from 62 to 71 per cent, and where the axilla was involved it varied from 24 to 30 per cent, making a total of about 40 per cent five year cures in both groups.

These elaborate summaries would seem to justify and confirm a statement of Rodman made in 1912 that surgery should cure one half of all cases of breast cancer provided they can be subjected to the complete radical operation early in the disease.

Beaumont Building.

PROGRESS IN THE CONTROL OF CANCER

F. L. RECTOR, M.D.

Field Representative, American Society
for the Control of Cancer

EVANSTON, ILL.

The unknown horizons of cancer are being pushed back farther and farther through the three closely related activities of clinical diagnosis and treatment, research and education. Each of these is making significant contributions to a wider understanding of the problems of malignancy. One of the most interesting aspects of the entire cancer problem is that practically every particle of additional scientific information about the disease adds

to the hopefulness of its eventual control as a major cause of death.

Realization by the medical profession that the diagnosis and treatment of cancer is no longer one specialist's problem is offering much additional hope to the cancer patient. Organized tumor clinics in general hospitals, nearly three hundred of which are now functioning, are bringing a better appreciation of the complexities of this problem in mod-

ern medical practice. These clinics offer help to the family physician who is often denied access to necessary diagnostic and therapeutic facilities while to the cancer patient it gives the benefits of group consultations with those having the widest experience with malignant disease.

An additional advantage of the tumor clinic is its usefulness as a center for graduate study for all physicians within its sphere of influence. This is possible largely because of the increased number of cancer patients to be observed in comparison with the relatively small number of such patients seen in the average general hospital. The values of comparative methods of treatment can be established much sooner where large numbers of patients are available. All in all, the tumor clinic offers the maximum of good service to the cancer patient and excellent opportunities for the education of the physician.

In the field of research some of the most significant contributions to our knowledge about cancer are being made in the sciences of biology, chemistry, physics and genetics. The role of certain chemicals, now numbering approximately fifty with more being added at frequent intervals, in the etiology of cancer is now fully appreciated. The knowledge that cancer is primarily a biological problem concerned with the vital function of growth of the cell is stimulating research workers to focus attention on the cell to identify those forces responsible for malignant changes in the cell.

Cancer research today is concerned more and more with the chemical nature of cell activity and investigation is being promoted actively in the field of biochemistry. Wide researches are under way to find those chemicals with the most potent influence on normal and abnormal cell activity.

The physicist is extending the knowledge of irradiation therapy and that knowledge has increased the use of this therapeutic method of treating malignancy, both for curative and palliative purposes.

Studies in genetics have been confined largely to work with laboratory animals. The further this work progresses the more evident it becomes that vastly improved records of human cancer are essential if we are to know more accurately the influence of heredity on cancer development in the human race. Because the great majority of marriages bring about a dilution of the probability of transmitting cancer to offspring through susceptible parents, most geneticists are unwilling to go beyond recognition of the possible transmission of susceptibility to cancer in succeeding generations. Although cancer may be proved to be conditioned by heredity, the rapidly extending appreciation of the value of early diagnosis and prompt treatment will continue to offer much hope to the cancer patient and will more than offset such handicaps as heredity may impose.

The greatest advance in cancer education of the public has been the organization of the Women's

Field Army of the American Society for the Control of Cancer. This organization now extends to forty-six states of which Missouri was among the first to be included. Its objectives are to bring to the general public the known and accepted facts about cancer and methods for its control. The presentation of these facts by the medical profession to hundreds of audiences has caused thousands of persons for the first time to seek examination for determining their freedom from this disease. It has caused countless others to replace their unreasoning fear of the disease with an intelligent caution.

The value of this educational program cannot be fully measured, but informed physicians are in a position to know better than anyone else the results of this program as their patients come in increasing numbers for the physician's attention to their questions about this disease. Success of this educational work rests in large measure on the full cooperation by the medical profession. As the objectives of periodic examination and recognition of the early signs of cancer become better understood a fuller cooperation by the physician will be expected.

The outlook for controlling the increased number of deaths from cancer in Missouri is becoming brighter. That fortunate time when these deaths are decreased will be hastened in proportion to the cooperation that is developed between the patient and his physician. Education will reduce the waiting period of the patient before seeking professional advice and service. The physician will make his contribution by not delaying in diagnosis and treatment once the condition is brought to his attention.

823 Case Street.

FUNGUS INFECTION EFFECTIVELY TREATED BY SULFANILAMIDE

Sulfanilamide has proved effective in the treatment of a case of fungous infection characterized by lumpy tumors, Edwin M. Miller, M.D., and Egbert H. Fell, M.D., Chicago, report in *The Journal of the American Medical Association* for Feb. 25.

Actinomycosis, also called lumpy jaw, big jaw, dams, clyers or wooden tongue, is a chronic infectious disease of cattle, sometimes transmitted to man.

In the case reported by Drs. Miller and Fell the disease developed in the lower part of the abdomen of a boy 11 years old. Other drugs were used for three months without any benefit. Within a week after treatment with sulfanilamide was started, improvement in the abscessed mass and in the condition of the boy was apparent.

When the patient was last seen by the authors they say that "he was certainly the picture of robust health and showed no ill effects from the continuous taking of sulfanilamide for about ten months."

If you are working indoors all day, using your brain instead of your brawn, remember to take some form of active exercise outdoors every day to balance the indoor activity.—*Hygeia*.

Man has subjected animals to his use; but he has also subjected himself to many of their diseases.—*Hygeia*.

HOW THE INDIGENT CANCER PATIENT IN MISSOURI CAN SECURE TREATMENT

FRANK T. HODGDON, Chairman,
FRED. J. TAUSSIG, M.D.,
PAUL F. COLE, M.D.,

AND

WILLIAM M. CLARK
Cancer Commission of the State of Missouri

ST. LOUIS

It has come to the attention of the Cancer Commission that there has been on occasion some question as to the operation of the Commission, the type of care offered patients, where and how such care can be obtained, cost and many other pertinent facts. The Commission desires to cooperate at all times with anyone interested in the care of cancer patients and for this reason an outline covering questions that have arisen was prepared and sent to each county court. Feeling that the physicians of Missouri are interested a similar outline is presented for their information.

How were the Cancer Commission and the Cancer Hospital established? The Cancer Commission was created by the 59th General Assembly under Committee Substitute for Senate Bill No. 3 and became a law on September 6, 1937. Under this Bill a commission of four men, serving without salary and appointed by the Governor, was authorized to build and equip a State Cancer Hospital for only indigent cancer patients, funds being provided for this purpose.

Where is the hospital being erected? After due consideration Columbia was selected as the site. Progress of the construction of the Ellis Fischel State Cancer Hospital has been reported in news articles from time to time in the daily press.

Where can indigent cancer patients be taken care of at the present time? It was suggested to the Cancer Commission that since it was obviously the intention of the legislature to care for indigent cancer patients as soon as possible, it might be arranged for bed space to be provided temporarily in already existing state institutions. After conferences with members of the Eleemosynary Board it was learned that temporarily bed space could be paid for by the Cancer Commission at the state hospitals at Fulton and St. Joseph.

In addition to the funds for construction and equipment of the hospital an amount for the first year's operation of the institution was appropriated. Since it was known from the first the hospital could not be completed for more than a year, with the Attorney General's approval arrangements were made with the Eleemosynary Board whereby two cancer divisions would be operated, these divisions to be known as Cancer Hospital No. 1 at Fulton and Cancer Hospital No. 2 at St. Joseph. These are not divisions of the state hospitals but are under the direction and control of the Cancer Commission.

How can patients be admitted to these two cancer hospitals? Admission to these institutions is on the same basis as is provided in Committee Substitute for Senate Bill No. 3 for admission to the State Cancer Hospital. The law states that forms must be provided by the Cancer Commission for the admission of patients. It took much deliberation to make certain that all necessary information required by law had been included in these forms. The three major provisions are: (1) Anyone hearing of an indigent person suspected of having cancer may bring this to the attention of the county court, at the same time testifying to the indigency of the patient. (2) The county court appoints a physician to examine the patient and gives a written report of the examination. If the court chooses, the county doctor or any doctor being paid by state or municipal funds can be instructed to examine the patient; if a physician in private practice is appointed he is entitled to receive \$5 for the examination from the county court. (3) After this information is received and the county court is satisfied as to the indigency of the patient, the court enters an order asking that the patient be admitted to the Cancer Hospital for examination and care.

Where can additional application forms be obtained? Additional forms may be obtained by writing to the Cancer Hospital at Fulton or the Cancer Hospital at St. Joseph or the office of the Cancer Commission in St. Louis.

Where should completed forms be sent? The court is asked to mail the application. After receipt of the form the patient is notified when to report to the hospital. The Commission asks for cooperation in this as the hospitals are running near to capacity and at times it might be necessary to send a patient home because of no vacancy should he appear unscheduled although he have the duly authorized form with him.

Should patients be sent to the Cancer Hospital at Fulton or St. Joseph? For the present it is left to the discretion of the county court to which institution a patient is sent; it is presumed the patient will be sent to the hospital division nearest his home.

What kind of treatment is given? Only methods of treatment recognized by the medical profession are given; namely, surgery, roentgen ray or radium, or a combination of these.

Follow-up of patient. Patients are given specific appointments to return for examination. It is im-

portant they return at the time specified. If they do not the medical social service worker tries to ascertain why the patient has not reported.

What is the cost per patient? Committee Substitute for Senate Bill No. 3 specifies that not more than \$5 per month per patient can be charged by the Cancer Commission. This charge is to be made to the county court. Counties are not charged for visits by patients who return home the same day of the treatment; it is only when it is necessary to hospitalize a patient that a charge is made.

What does this \$5 charge cover? This charge covers all expenses of the patient while he is being hospitalized in the institution; however, it does not take care of transportation to and from the institution.

Why do we bill only counties? It has been suggested that the Commission bill individuals of the county or organizations which sponsored the patient's hospitalization. According to the law establishing the Commission, it cannot bill anyone but the county court.

How are patients who move from one county to another handled? Occasionally a patient moves from one county to another after treatment has been begun. It is imperative that consecutive treatment be maintained if successful results are to be obtained. Therefore, the county of the new residence will be asked by the medical social service worker to institute a court order from that county recertifying the patient. The first county is held responsible for two months after a patient has moved and after that, the county to which the patient has moved.

What will medical social service workers do? One of the services the Commission hopes to develop is that of having medical social service workers available to cooperate in working out any of the numerous problems which may arise.

Where can additional information be obtained? Where is the Commission office?

The central office of the Cancer Commission of the State of Missouri is located at 3713 Washington Boulevard, St. Louis. Any inquiries directed to the Commission at this address will receive immediate attention. Miss Dorothy Hehmann is the Executive Secretary.

3713 Washington Boulevard.

Although overexertion and intense emotional stress appear to have no bearing on the coronary thrombosis attack itself, they are directly concerned in the primary causes of the condition leading up to the attack, states Dr. J. C. Paterson, Regina, Sask., Canada (*Journal A. M. A.*, March 11, 1939).

A coronary thrombus is a blood clot in an artery which shuts off the supply of blood to the heart. From autopsy studies Dr. Paterson finds that the clot forms gradually, possibly taking several days before it completely obstructs the artery. Pointing out that it has been the common belief that overexertion or intense emotional stress has a direct bearing on the fatal attack of coronary thrombosis, the doctor says his findings indicated such activities are merely coincidental.

CERVICITIS

A NEW TREATMENT WITH OSMOS

HANS L. KLEINE, M.D.

ST. LOUIS

Many and varied have been the means and medications suggested in the last few years for the local treatment of cervicitis. A simple yet effective method is described here, using a rather new product called "osmos."

Osmos is a soft paste consisting of 58 per cent magnesium sulphate, which in turn contains the sulphate of tetra-ethyl-diamino-triphenyl methane (brilliant green) incorporated in a water soluble base. The p_{H} range is controlled to conform to a reading of from 4 to 5.

Osmos was originally suggested for the treatment of furuncles, carbuncles, lymphangitis with cellulitis and other inflammatory processes, mostly surface in nature. Knowing the value of magnesium sulphate in the old wet pack (concentrated solution of magnesium sulphate in glycerin and alcohol), the author conceived the idea of treating cervicitis with osmos which in addition to the magnesium sulphate contains an antiseptic dye. The results were most gratifying.

One hundred cases in all were treated, the cases chosen with some care. Sixty of them had a simple cervicitis with the infection more or less limited to the surface of the cervix, showing an erosion or irritation and redness, most of them with discharge. They were classified as acute nonspecific and chronic cervicitis. The latter were subdivided into nonpregnant, antepartum and postpartum. The only medication used in these sixty cases was osmos. No douches of any kind were given. The other forty cases showed deeper involvement of the cervix as deep endocervicitis, cysts or lacerations. These were cauterized before the osmos was applied.

The technic was simple. Cotton tampons were used in all cases to apply the osmos to the cervix. These tampons can be made easily by the physician or his office assistant. They consist of a flat piece of roll cotton about 3 by 6 or 8 inches, rolled rather firmly to form a 3 inch roll. They may be made larger or smaller at the discretion of the physician. A double string 6 inches long is looped firmly around the center. Tampons of the "rosebud" variety can be bought at a moderate cost. Some physicians may prefer to use the capsule or veterinary tampon which is a little more expensive.

The patient is placed in the usual lithotomy position, a careful bimanual examination made, a speculum inserted and the cervix cleaned. A thorough note is made of the condition of the cervix. The cotton tampon is slightly broadened or hollowed at one end and the amount of osmos which will generously cover the end of a wooden tongue depressor

*The osmos used in this work was supplied by Irwin, Neisler and Company, Decatur, Illinois.

is deposited thereon. The tampon is grasped at the other end with a uterine dressing forceps, slipped through the speculum and held snugly against the cervix while the speculum is removed. A second tampon is inserted if necessary. The string attached to the tampon should protrude an inch or two from the vagina.

An alternative method consists in applying the same amount of osmos to the concavity of the posterior blade of the speculum before or after insertion and then depositing the osmos on the cervix by using a scoop-like motion along the posterior blade when inserting the tampon.

If the capsule or veterinary tampon is used, a like amount of osmos is deposited in one end of the capsule, the capsule closed and inserted with a little lubricant high into the vagina without a speculum. The end of the capsule containing the osmos should be inserted first.

The patient is instructed to remove the tampon by simple traction on the string in not less than twenty-four or more than forty-eight hours, the average being thirty-six hours. These patients were treated once or twice a week when possible. As the series consisted principally of private patients it was difficult to have them return oftener to the office for treatment. More frequent applications would certainly not be harmful and should shorten the course of treatment.

The accompanying table shows the number of cases of each type treated, the average number of treatments and the length of treatment. Improvement was definite in every case treated although in a small percentage of cases a complete cure was not obtained. Improvement consisted of a lessening of the discharge, a gradual healing of the erosion or a lessening of the irritation or redness of the cervix and a gradual return to the normal pH of the vagina in those cases in which it was abnormal in the beginning. A case was considered cured when the discharge stopped, when the mucous membrane covering the cervix returned to normal and when the vagina tested acid to nitrozone paper.

Plain cleansing douches were used only in some of the cases that were cauterized because of the

unpleasant foul discharge. This was merely a hygienic measure left up to the discretion of the patient. I do not believe that it played any part in the treatment.

In those cases in which the cervix was cauterized, the osmos and tampon were applied immediately after the cauterization. This application was repeated once or twice during the healing process only if the cervix was not healing as rapidly or cleanly as it should. The immediate use of osmos seemed to localize the reaction and lessen the discomfort to the patient. The application of osmos during or after the separation of the slough definitely gave a quicker and cleaner healing.

It was found that the osmos treatment was especially to be recommended in pregnant patients and in extremely sensitive or nervous individuals. Cauterization or more radical measures would be contraindicated in these patients. It was used in all trimesters of pregnancy and not one patient showed any untoward symptoms such as cramping and bleeding.

It was found that osmos was markedly hypertonic to tissue fluids and that when applied to the inflamed cervix a strong osmotic pressure developed which depleted edema and localized the infection. In those patients with parametrial involvement, the thickening, tenderness and pain were definitely lessened. This depletion of edema lessened the pressure within the tissues and permitted an improvement in the circulation of blood and lymph. This aided healing since nutrition to and elimination from the parts were improved. Tone and the natural resistance to infection were increased. No maceration of tissue was ever found, thus tending to control local reinfection.

None of the patients complained of any irritation from the treatment, not even those cases in which the tampon was left for forty-eight hours. Some of the patients removed the tampon after twenty-four or thirty-six hours because of discomfort from the wet tampon which had become saturated from absorbed secretions and tissue fluids. It was in these patients that an extra dry tampon was inserted. The mucous membrane of the vagina showed no signs of redness or irritation. It has been shown, experimentally, that 1 to 500 brilliant green in osmos base is not irritating to the ventral surfaces of the guinea-pig when applied daily with a swab. It has also been shown, experimentally, that osmos applied to the delicate conjunctival membranes of the rabbit caused no permanent damage. Since the brilliant green in osmos is only 1 to 25,000, it can be assumed that it is not irritating.

It has been shown that brilliant green has definite antiseptic properties when applied to the skin or to mucous membranes.¹ It is also known that brilliant green is a dye with the ability to penetrate tissue. It performs a vital staining of microorganisms, apparently paralyzing their powers of reproduction. Its presence insures bacteriostasis.²

Table 1. *Résumé of Treatment*

Types Treated	Number of Each Type	Average Number of Treatments	Average Length of Treatment	Per Cent Cured*
Acute Cervicitis, Nonspecific	4	6	4 weeks	100
Chronic Cervicitis, Nonpregnant	29	6	4 weeks	90
Chronic Cervicitis, Antepartum	11	4	6 weeks	72.8
Chronic Cervicitis, Postpartum	16	4	3 weeks	87.5
Chronic Cervicitis After Cauterization	40	2	4 weeks	100

*All patients were checked one month or more after the last treatment.

Osmos was not tried in any case of acute gonorrheal cervicitis as no cases were available at the time. However there is no contraindication to its use. It was Meaker³ who said, "In many cases, notably those of endocervicitis and mild salpingitis, a course of depletion may result in a permanent cure, the improved circulatory conditions allowing the tissues to regain enough of their natural resistive powers so that they are able to overcome infection."

The series studied thus far is comparatively small. However it is being reported for the purpose of stimulating more work and discussion of this important subject.

SUMMARY

1. Osmos is effective in the treatment of simple cervicitis.
2. It is a helpful adjunct to cervical cauterization.
3. It is easy to use.
4. It is not an expensive form of treatment.
5. It causes no discomfort to the patient.
6. No harmful or irritating reactions occurred.

3115 South Grand Boulevard.

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TUBERCULOSIS IN DRESSED POULTRY

"About 3 per cent of the dressed poultry offered for sale in American markets is infected with tuberculosis," *The Journal of the American Medical Association* for March 18, says:

"In order to test for the possible presence of tubercle bacilli in dressed poultry, W. H. Feldman of the Mayo Foundation removed spleens aseptically from 125 fowls at the time of evisceration by a local dealer. The fowls thus examined included sixty-six young chickens, thirty mature hens, eighteen domestic ducks, four turkeys, three capons and four wild ducks.

"Each spleen was emulsified in 5 cc. of sodium chloride solution, and 1 cc. of the resulting emulsion was distributed over the surface of four tubes of egg yolk glycerin agar. The tubes were incubated at 37 C. for ten weeks.

"Positive growths of acid-fast bacilli were obtained from four spleens. One young chicken, two adult hens and one domestic duck were the sources of these four organs. Subcultures from each of the four cases were inoculated in duplicate into guinea pigs, rabbits and chickens.

"All guinea pigs were without macroscopically demonstrable lesions when killed from six to eight weeks later. Three of the eight rabbits died within two to eighteen days, presumably from intercurrent infection. The five remaining rabbits died or were killed from one to two months later. At necropsy each of the five showed extensive tuberculous lesions. The eight chickens died or were killed at the end of from six to eight weeks, all showing extensive tuberculosis of the so-called Yersin type.

"From this evidence the investigator concluded that each of the four positive spleens was the carrier of

virulent tubercle bacilli of the avian type. Since virulent tubercle bacilli are thus present in about 3 per cent of apparently normal fowls and since no practical method of postmortem inspection will disclose their presence, Feldman concludes that the rearing of fowls for food markets should be prohibited in environments known to be infected with avian tuberculosis."

DEATH RATE OF PNEUMONIA WITH PREGNANCY IS HIGHER

Pneumonia complicated by pregnancy has a much higher death rate than it does in nonpregnant women, Maxwell Finland, M.D., and Thomas D. Dublin, M.D., Boston, point out in *The Journal of the American Medical Association* for March 18. It accounts for about one death in every 5,000 deliveries and is the cause of about one half of the maternal deaths not directly due to pregnancy.

Drs. Finland and Dublin studied the incidence of pneumonia in pregnancy at the Boston City Hospital. About one of every eight women of child-bearing age who had pneumonia was pregnant, 0.63 per cent of all women admitted during pregnancy or for delivery had pneumonia and in 1.2 per cent of all the cases of pneumonia the condition was complicated by pregnancy.

A study of 212 cases of pneumonia complicating pregnancy in which the type of organism causing the infection was determined, revealed that the incidence of pneumococcic types was similar to that found in all cases of pneumonia in adults. The authors state that "the types for which specific antipneumococcus serum has proved effective were the most frequent.

"Blood borne infection was more frequent in pregnancy than in all cases for the same age groups. Likewise the death rates were higher than in corresponding cases for the same age group.

"The death rates were highest for late pregnancy and for women whose pregnancy was terminated during the disease.

"The death rate for all the serum treated patients was almost one half of that for the corresponding nonserum treated patients. The lower death rates were for pneumonia complicating both early and late pregnancy, for pneumonia after delivery, and for those women whose pregnancy was unaffected.

"The frequency with which pregnancy was terminated did not seem to be influenced by serum treatment.

"The pneumonias of pregnancy are sufficiently serious to warrant the use of every available means of treatment, and the proved efficacy of specific serum treatment warrants primary consideration in those cases in which it is applicable."

WARNS AGAINST USE OF BENZEDRINE

The use of benzedrine in place of alcohol for the purpose of "pepping up" or getting a "kick" out of its effects should be discouraged, *The Journal of the American Medical Association* for March 11 warns.

Commenting on recent experiments by an eastern physician with the use of the drug in place of liquor for cocktail parties, as a possible cure for habitual drunkenness, *The Journal* says:

"The Council on Pharmacy and Chemistry of the Association within the last year has published a report, 'The Present Status of Benzedrine Sulfate,' which has a considerable number of warnings concerning the use of this preparation by the general public.

"There are several other features apparently overlooked (by the physician who made the experiments), among them the fact that, while alcohol is a dilator of blood vessels, benzedrine constricts them."

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EDITORIALS

CANCER: TOPIC OF THE MONTH

The Postgraduate Correlating Committee selected "Cancer" as the topic of the month for the April issue of *THE JOURNAL* and discussions of various phases of diagnosis, treatment and control of cancer appear in this issue. "Mental Health" will be the topic of the month for May. During the summer months the work of the Postgraduate Correlating Committee will be suspended and will begin in the fall with the September issue of *THE JOURNAL*. Because many of the societies are less active during the summer months and an important part of the work of the Committee is to promote programs at society meetings on the topics of the month, it was thought best to defer work until societies meet more regularly.

THE EXCELSIOR SPRINGS SESSION

The Excelsior Springs Session of the Missouri State Medical Association promises to be outstanding in its offerings of practical scientific work and enjoyable entertainment. The Committee on Scientific Work has obtained a number of carefully chosen guest speakers, selected because they can bring information applicable to the practitioner and the problems he meets in his daily work. Diligent work on the part of this Committee has resulted in a program that has much to offer each member.

To give members greater benefit round table luncheon meetings will be held on Tuesday and Wednesday noons when questions will be answered and discussed. The round table discussions will cover surgery, medicine and pediatrics. Opportunity for presenting questions will be given each member.

The out of state guest speakers at the session will be Dr. Sumner L. Koch, Chicago, Associate Professor of Surgery, Northwestern University Medical School; Dr. William Malamud, Iowa City, Professor of Psychiatry, State University of Iowa College of Medicine; Dr. Walter M. Whitaker, Quincy, Illinois, Pediatrician; Dr. B. R. Kirklin, Rochester, Associate Professor of Radiology, University of

Minnesota Graduate School of Medicine; Dr. I. Mims Gage, New Orleans, Associate Professor of Surgery, Tulane University of Louisiana School of Medicine; Dr. Warren H. Cole, Chicago, Professor of Surgery, University of Illinois College of Medicine; Dr. Fred M. Smith, Iowa City, Professor of Theory and Practice of Medicine, State University of Iowa College of Medicine; Dr. A. W. Adson, Rochester, Professor of Neurosurgery, University of Minnesota Graduate School of Medicine.

Missouri members who will appear on the program are Dr. Evarts A. Graham, St. Louis, Bixby Professor of Surgery, Washington University School of Medicine; Dr. G. O. Broun, St. Louis, Professor of Internal Medicine, St. Louis University School of Medicine; Dr. William M. Ketcham, Kansas City; Dr. Alexis F. Hartmann, St. Louis, Professor of Pediatrics, Washington University School of Medicine; Drs. John J. Boucek, Charles F. Gerson and Andrew C. Henske, St. Louis; Dr. Archer O'Reilly, St. Louis, Associate Professor of Orthopedic Surgery, St. Louis University School of Medicine; Dr. G. Wilse Robinson, Jr., Kansas City; Dr. B. W. Hays, Jackson; Dr. James R. McVay, Kansas City; Dr. O. P. Hampton, Jr., St. Louis; Dr. Raymond O. Muether, St. Louis; Dr. Drew Luten, St. Louis, Associate Professor of Clinical Medicine, Washington University School of Medicine; Dr. Jacob Kulowski, St. Joseph; Dr. Fred. J. Taussig, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine; Dr. Paul F. Cole, Springfield.

Dr. J. C. Litzenberg, Minneapolis, Professor of Obstetrics and Gynecology, University of Minnesota Medical School and Graduate School, will be the guest of the Committee on Maternal Welfare at its annual dinner meeting. Members interested in obstetrics will have an opportunity to present their problems and Dr. Litzenberg will discuss the questions presented. The dinner will be held in the Clubroom of the Elms Hotel on Monday evening, April 10.

The scientific program appears on page 176.

The House of Delegates will convene on Monday morning at 9:30 a. m. and on Monday afternoon at 4 o'clock and will hold its final session at 3 o'clock on Wednesday. The Council will meet Monday noon and on Wednesday afternoon at 5 p. m. With the many problems that are before the medical profession today it is most urgent that each component society be represented, to offer their counsel and benefit by the counsel of others. Members who are not delegates are welcomed to attend the meeting of the House as visitors and become more closely acquainted and allied with the business of the Association.

The Clay County Medical Society and its committees have been active in caring for the many details involved in preparing for the session. They have also arranged entertainment which will add much to the session. On Tuesday evening immediately following the Woman's Auxiliary Bring-

Your-Husband Dinner the Clay County Medical Society will be hosts at a President's Dance to be held informally in the main dining room of the Elms Hotel.

On Sunday, April 9, a golf tournament will be held at the Excelsior Springs Golf Club at 11:00 a. m. Handicap prizes and a permanent trophy presented by the Elms Hotel will be given. For members who register at the Elms, Snapps or Royal hotels on Sunday morning the green and registration fees for the tournament and green fees for two days will be complimentary.

The Council will again entertain the Past Presidents, the President and the President-Elect at a dinner to be held Sunday evening, April 9.

BILLS IN LEGISLATURE

The 1939 Legislative Session, being a revision session (Sec. 41, Art. IV, Const. of Mo., as amended by the people, Nov. 8, 1932), after the expiration of seventy days of the session all measures other than appropriation bills and such bills as may be determined to be revision bills or as may be recommended by special messages by the Governor were stricken from the calendars of the House and Senate. The joint committees of the House and Senate have made reports to their respective branches of the legislature but at this time no final action has been taken on the bills that may be affected by the seventy day limitation.

House Bill No. 658, introduced by Representative Still, Kirksville, on March 15, amends Section 13514, Chapter 102, Revised Statutes of Missouri, 1929, relating to the State Board of Osteopathic Registration and Examination, by striking out all the words following the word "practiced" found in line four of said section to and including the words "of Kirksville, Missouri" found in lines five and six of said section, and inserting in lieu thereof the following words: "in any school of Osteopathy, recognized and approved by the American Osteopathic Association," and declaring same to be a revision bill so that said section when amended would read as follows: "Section 13514. The system, method or science of treating diseases of the human body, commonly known as osteopathy recognized and approved by the American Osteopathic Association is hereby declared not to be the practice of medicine and surgery within the meaning of Article I of Chapter 53, and not subject to the provisions of said article." This bill has been referred to the Committee on Public Health.

THE MISSOURI STATE COMMITTEE OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

No disease is more a mutual responsibility of the medical profession and the public than is cancer. Although some patients with advanced cancer re-

spond to treatment, whether it be by surgery, radium, roentgen ray or a combination of these, the most hopeful stage for cure is early cancer. The American Society for the Control of Cancer was organized by a group of doctors and laymen twenty-six years ago in New York City. The purpose of this organization was and is "to collect, collate and disseminate information regarding the symptoms, diagnosis, treatment and prevention of cancer; to investigate conditions under which cancer is found and to compile statistics in regard thereto." "Fight Cancer With Knowledge" is its slogan.

Since the foundation of the American Society for the Control of Cancer the movement has gathered momentum throughout the country. The Missouri State Committee was formed in 1915 to carry on the work of the society in our State. The executive committee is made up of the following: Dr. Louis H. Jorstad, St. Louis, Chairman; Dr. Dudley A. Robnett, Columbia, Chairman of the Committee on Cancer of the Missouri State Medical Association; Dr. Earl C. Padgett, Kansas City, member of the Committee on Cancer of the Missouri State Medical Association; Dr. Fred. J. Taussig, St. Louis, member of the Cancer Commission of the State of Missouri; Mrs. David S. Long, Harrisonville, Commander of the Women's Field Army; Mrs. Robert A. Holland, St. Louis; Dr. Roland M. Klemme, St. Louis; Dr. A. N. Arneson, St. Louis, and Mr. Herbert D. Condie, St. Louis, treasurer of the Women's Field Army. A permanent office is maintained, a secretary is on duty at all times and a state-wide campaign to control cancer through education is carried on.

The Women's Field Army was formed by the American Society for the Control of Cancer in 1936. Under the leadership of Marjorie B. Illig, National Commander of the Women's Field Army, much has been done to educate the public through the dissemination of sound, conservative information on cancer control. With the cooperation of the medical profession in each state, the program was outlined, and every woman's organization was asked to cooperate and every man and woman is urged to enlist.

The activities of the Women's Field Army fall into three main divisions: (1) Lay education is of primary importance and around this axis every other activity of the Women's Field Army revolves; (2) organization, strong and well-knit with all efforts concentrated toward a single goal, is of vital importance to develop this campaign of education; (3) funds to carry out the program of the Women's Field Army and to purchase the necessary educational aids (literature, exhibits, film strips) are essential. In the annual April enlistment campaign \$1.00 memberships are solicited to support this work.

This is the beginning of the third year since the Women's Field Army of the American Society for the Control of Cancer was organized. With the cooperation of the organized medical profession in

each community, the Women's Field Army in Missouri is growing steadily. Under the leadership of Mrs. David S. Long, Harrisonville, the women of Missouri have worked diligently to establish this organization. Through the enthusiasm and devotion of the individual workers to the cause of cancer control, through the literature distributed by the Field Army and through the radio talks and lectures on cancer by members of the medical profession sponsored by the Missouri State Committee, many men and women have been prompted to seek early diagnosis and prompt treatment. Through these methods of mass education this Army seeks to replace fear with facts and superstition with sound information.

THROMBOSIS IS A COMMON CAUSE OF DEATH

It is estimated¹ that more than three million persons now living in this country will die from the effects of arterial or venous thrombosis. It is an unfortunate but not uncommon experience to witness the death of a normally convalescent surgical patient between the tenth and fourteenth post-operative days. Yet it is not generally recognized that as many as two thirds² of the deaths ascribed to thrombosis occur in medical patients.

Burke points out that two thirds of his patients in whom autopsy exposed one or more thrombi had not been subjected to the hazards of surgery, to trauma or to the puerperium. Furthermore a third of them had previously undergone these procedures without hint of complication. In general, these thrombi causing death were single, large enough to be recognized with the naked eye and were most commonly located in the pulmonary system. Some arose as emboli from thrombi in pelvic, inguinal and other areas.

The classical picture of pulmonary embolism is afforded by the surgical patient who suffers a sudden acute collapse, gasps for breath and dies within the minute. This concept must now be extended to include cases of nonfatal thrombosis or embolism. The latter manifest chiefly shock alone especially in cases with pulmonary localization. There may or may not be dyspnea. Faintness, pallor, sweating, tachycardia and a fall in the blood pressure usually occur coincidentally with the clinical shock. Pleural friction, bloody sputum and roentgenologic signs are commonly absent. The possibility of pulmonary embolism must be kept in mind if the proper diagnosis is to be made, perhaps reached by exclusion.

Factors in the classical triad leading to thrombosis are always discernible in these cases. Alterations in the current of the blood, alterations in the vessel wall and alterations in the composition of

the blood are the pathologic entities upon which thrombi are founded. Hence special care must be given persons likely to develop one or more of these characteristics.

Thrombi occur rarely in persons under the age of 40 years. Obviously such persons are more likely to have a normal cardiovascular system than persons in higher age groups and the integrity of their hearts and the vessel walls may be assumed. With advancing age degeneration of these organs is more likely to have taken place. Excessive introduction of fluids intravenously may so alter the fluidity of the blood as to increase the danger of thrombosis. The part played by this factor has not been fully evaluated. At the present time experience with anticoagulants such as heparin is insufficient to justify their routine employment in susceptible individuals.

Nevertheless in those persons in whom the first two factors are likely to be present much may be accomplished by treatment designed to minimize them. Burke expresses the opinion that the period of recumbency for either a surgical or a medical condition is a prime factor. Recumbency is attended by a decrease in the number and extent of muscular contractions, decreased voluntary and heart muscle tone, venous capillary stasis, hypostatic congestion in the systemic or pulmonary circulation and finally a drop in arterial and venous blood pressure. Hence a number of factors become operative as soon as the recumbent position is assumed any one of which will reduce the velocity of the blood flow. In so doing a factor contributing to thrombus formation is inaugurated. Whenever possible the transition from a state of activity to one of complete recumbency should be gradual. It should be accomplished by easy stages just as the change from the recumbent posture to the active is accomplished, slowly and over a period of several days.

It is obvious that the heart, especially in elderly persons or in those known to suffer from myocardial impairment, must have careful attention. Perhaps the favoritism enjoyed by digitalis in the pre-operative routine of the surgeon of a few years ago was derived from the support it offered the heart. But there are other and indirect methods by which the heart may be supported. It must be protected against outside interference such as that mediated by large tumors, by the pressure of pleural or abdominal fluid, even by pressure on the femoral vessels of a relatively rigid structure such as Poupart's ligaments. In other words, those mechanical factors leading to impairment of the circulatory efficiency must be ferreted out.

Finally, definite suggestions have been made in regard to the prevention of thrombosis. These are based upon the following objectives: to keep the fluid content of the body normal, to prevent a rise in intra-abdominal pressure and to invigorate the venous return from the legs as by frequent massage. The straining incident to defecation is some-

1. Barnes, A. R.: Pulmonary Embolism, *J. A. M. A.* **109**:1347, 1937.

2. Burke, M.: Thrombosis, A Medical Problem, *Am. J. Med. Sc.* **196**:796, 1938.

times neglected as a cause of a rise in intra-abdominal pressure; it may be largely prevented by the frequent employment of enemata or oil. The return flow of blood from the legs may be assisted by the Trendelenburg position.

Thyroid substance has been prescribed to increase the general body tone, hence to aid in the prevention of thrombosis. In one series of 4500 surgical patients given thyroid substance as a routine preoperative measure the incidence of fatal pulmonary embolus was 0.09 per cent as compared to a similar and control series in which the incidence was 0.34 per cent.

Diagnostically, certain fairly characteristic changes are found in the electrocardiograms of persons with pulmonary embolism or thrombosis. These serve to distinguish it from coronary thrombosis with which it is likely to be confused. Chief among them is the constant presence of an S_1 , usually quite prominent.

Early recognition of thrombosis and embolism in both medical and surgical cases is important because death is not the inevitable sequela. A sufficient amount of an antispasmodic drug should be given to relieve vessel spasm because death results from reflex nerve inhibitions initiated by the lodgment of the embolus rather than from the occlusion of the vessel. If a single thrombus or embolus occurs, further ones are not unlikely. Hence the patient must be treated according to methods previously outlined. With care recovery will be the rule. Finally, thrombus and embolus formations must come to be regarded as medical rather than as surgical problems.

NEWS NOTES

At the meeting of the St. Louis Surgical Society on March 15 papers were presented by Drs. C. F. Sherwin, Thomas M. Martin, George A. Carroll, Louis H. Jorstad and Bruce C. Martin, St. Louis.

Dr. Donald R. Black and Dr. George H. Thiele, Kansas City, were guests of the Polk County (Iowa) Medical Society at Des Moines on March 14. Dr. Black spoke on "Pathology and Physiology of the Pancreas and Liver," and Dr. Thiele discussed "Clinical Manifestations of Ano-Rectal Diseases and Their Treatment."

The American Medico-Legal Association is attempting to obtain the names of all men who hold both medical and legal degrees and requests that physicians who hold a law degree communicate with the association. Communications should be addressed to Dr. Frederick C. Warnshuis, President, American Medico-Legal Association, 137 Newbury Street, Boston.

Dr. August A. Werner, St. Louis, was a guest of the Peoria City Medical Society, Peoria, Illinois, on February 21 and spoke on "The Effect of the Ductless Glands on Growth and Development."

The following members presented papers at the meeting of the Trudeau Club of St. Louis at its meeting of March 2: Drs. Evarts A. Graham, Alexis F. Hartmann, M. F. Arbuckle, A. C. Stutsman, Alfred Goldman, Brian Blades and Dan W. Myers, St. Louis.

The American Physicians' Art Association composed of members in the United States, Canada and Hawaii will hold its second art exhibit at the City Art Museum, St. Louis, May 14 to 20, during the session of the American Medical Association. Art accepted for the exhibit includes portrait and landscape oils, water colors, sculpture, photographic art, etchings, ceramics, pastels, charcoal drawings, book-binding, wood carving and metal work. Sixty prize awards will be made. Dr. Max Thorek, 850 Irving Boulevard, Chicago, is secretary of the association.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons is offering an annual foundation prize of \$100 for the best manuscript submitted. The contest is open to interns, residents or graduate students and physicians who are actually practicing or teaching obstetrics, gynecology or abdominal surgery. Manuscripts must be submitted under an alias to the secretary of the association before June 1, be limited to 5000 words and such illustrations as are necessary and be type-written, double space, on one side of the sheet. The successful thesis must be presented at the September meeting of the Association without expense to the association. Dr. James R. Bloss, 418 Eleventh Street, Huntington, West Virginia, is secretary.

The Missouri Council of Public Welfare Agencies composed of executives of all state and federal health, welfare and educational agencies operating in Missouri, was recently organized. Dr. James W. Chapman, Jefferson City, Director of the Division of Child Hygiene of the State Board of Health, was elected chairman; Arthur Nebel, Director of Public Assistance of the Social Security Commission, vice chairman, and Robert C. Edson, Director of Probation and Parole, secretary. Because of the increasing amount of public welfare activities through state and federal resources and the resultant large number of workers in the field, such an organization was thought necessary to serve as a clearing house for problems affecting the different agencies, to reduce duplication of service and coordinate the work of the numerous services. The council will furnish all member agencies with full knowledge of the programs of others and thereby clarify many problems.

The American Association for the Study of Goiter is again offering the Van Meter prize award of \$300 and two honorable mentions for the best essays on original work on problems related to the thyroid gland. The awards will be made at the annual meeting of the association which will be held in Cincinnati, Ohio, May 22, 23 and 24, providing essays of sufficient merit are presented in competition. The competing essays may cover either clinical or research investigation, should not exceed three thousand words, must be presented in English and be typewritten in double space. They should be submitted to the corresponding secretary, Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pennsylvania, not later than April 15. A place will be reserved on the program of the annual meeting for the presentation of the prize award essay.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Nicotinic Acid—Abbott

Abbott's Nicotinic Acid Tablets 50 mg.

Abbott's Nicotinic Acid Tablets 100 mg.

Arzol Chemical Co.

Mercurochrome Applicators—Arzol

Eli Lilly & Co.

Ampules Metycaine 2%, 30 cc., in rubber stoppered vials

Mead Johnson & Co.

Mead's Nicotinic Acid Tablets, 20 mg.

Medical Arts Laboratory

Rabies Vaccine (Killed Virus) packages of 7 vials

Merck & Co., Inc.

Nicotinic Acid—Merck

Wm. S. Merrell Co.

Ephedrine Sulfate—Merrell

Ampule Solution Ephedrine Sulfate—Merrell,
¾ grain (0.05 Gm.), 1 cc.

Ampule Solution Mercury Succinimide—Merrell,
¼ grain (0.01 Gm.), 1 cc.

The National Drug Co.

Immune Globulin (Human)

The Upjohn Co.

Solution Procaine Hydrochloride 2%, 30 cc. vials
Solution Procaine Hydrochloride ½% with Epinephrine, 5 cc.

Ampoule Solution Procaine Hydrochloride 2% with Epinephrine, 1 cc.

Ampoule Solution Procaine Hydrochloride 2% with Epinephrine, 3 cc.

Solution Procaine Hydrochloride 1% with Epinephrine, 30 cc. vials

Solution Procaine Hydrochloride 2% with Epinephrine, 30 cc. vials

ORGANIZATION ACTIVITIES

AMENDMENTS TO THE CONSTITUTION

The following amendments were introduced at the 1938 Annual Session and are to be acted on at the 1939 Session:

Amendments

Amend Article V by striking out "(1)" and the words "and (2) the officers of the Association enumerated in Section 1 of Article IX of this Constitution" and adding one new section so that when amended said article shall read:

ARTICLE V—HOUSE OF DELEGATES

Section 1. The House of Delegates shall be the legislative body of the Association and shall consist of delegates elected by the component county societies. The officers of the Association as enumerated in Section 1, Article IX, of this Constitution shall have the right to attend all meetings of the House of Delegates and all other rights of delegates in such meetings except the right to vote for anything except officers of the Association. The Past Presidents of the Association shall have all the rights of delegates except the right to vote.

Sec. 2. The officers of the House of Delegates shall be a Speaker and a Vice Speaker elected by the delegates from their body. The Secretary of the Missouri State Medical Association shall be the Secretary of the House of Delegates.

Amend Section 1, Article IX—Officers, by inserting after the word "Treasurer" the words "Speaker and Vice Speaker of the House of Delegates" so that when amended said Section shall read:

ARTICLE IX—OFFICERS

Section 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, a Speaker and a Vice Speaker of the House of Delegates and ten Councilors.

Amend Article XIII of the Constitution by adding the words "and voting" following the word "present" in the third line, so that when amended said article will read:

ARTICLE XIII—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present and voting at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been published twice during the year in THE JOURNAL of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

BUDGET FOR 1939

Salaries (office and JOURNAL)	\$12,500.00
Printing of THE JOURNAL	6,700.00
Legislation	2,500.00
Defense	1,000.00
Postage	700.00
Postgraduate Instruction	1,200.00
Printing and Stationery	500.00
Traveling Expenses, Secretary and Assistant Secretary	1,100.00
Telephone and Telegraph	650.00
Rent of Office and Light	1,200.00
Meetings:	
Annual Session	
Council and Councilor Expenses	3,000.00
Committee Meetings	
General Expense and Miscellaneous	700.00
	<u>\$31,750.00</u>

FINANCIAL STATEMENT FOR 1938

R. A. LENNERTSON & COMPANY
ACCOUNTANTS
SAINT LOUIS

ROBERT A. LENNERTSON
CERTIFIED PUBLIC ACCOUNTANT

MEMBER AMERICAN INSTITUTE
OF ACCOUNTANTS

March 11, 1939.

Missouri State Medical Association,
St. Louis, Missouri.
Gentlemen:

Pursuant to instructions received, we have examined the accounts of the Missouri State Medical Association for the year 1938 and now present our report thereon together with the following exhibits:

- Exhibit A. Balance Sheet.
- B. Statement of Income and Expenses.
- C. Summary of Cash Receipts and Disbursements by Funds.
- D. Dues Receivable and Membership by Counties.

SCOPE OF EXAMINATION

Our examination covered the verification of the asset and liability accounts as set forth in Exhibit A with the records of the Association and a check of the recorded cash transactions for the year. Cash receipts, consisting of dues, rentals and JOURNAL income, were traced in total into the bank account as deposits and the disbursements were verified with paid cheques, purchase invoices and other data on file. Selective tests were made of the income from dues and JOURNAL advertising. Space in THE JOURNAL not occupied by articles, editorials and paid advertisements has been filled by publishing reciprocal and complimentary advertisements.

STATEMENT OF INCOME AND EXPENSES

The financial result of the Association's activities for the year 1938 was an excess of expenses over income in the sum of \$1,185.90 as set forth in Exhibit B. General activities resulted in a loss of \$1,198.26 while THE JOURNAL publication showed a gain of \$12.36. A comparative summary of income and expenses for the last two years follows:

	Year 1937	Year 1938	Increase or (Decrease)
Income	\$ 34,130.25	\$ 32,336.80	\$ (1,793.45)
Expenses	33,273.25	33,522.70	249.45

Net income (or loss)
for the period\$ 857.00 \$ (1,185.90) \$ (2,042.90)

From the foregoing, it will be noted that the principal difference is in the income account, there being \$1,793.45 less received in 1938 than in 1937.

BALANCE SHEET

Exhibit A, the Balance Sheet, presents the asset and liability accounts of the Missouri State Medical Association as of December 31, 1938, and it shows that the Association is in a sound financial condition. Comments on the accounts included therein, follow.

The cash balance in the sum of \$9,779.51 consisted of the following items:

Mercantile-Commerce Bank and Trust Co.	\$ 9,499.77
Secretary's Account	254.74
Petty Cash Fund	25.00

Total\$ 9,779.51

A certificate was obtained from the depository in verification of the cash in bank and the amount reported was reconciled with the ledger balance. The petty cash fund in the sum of \$25.00 was verified by actual count. The Secretary's account represents the unexpended portion of funds held by him for the payment of small bills.

Accounts receivable ledger sheets were reviewed in connection with the amounts due from advertisers and these accounts are summarized hereunder as to age:

October, November and December, 1938	\$ 524.93
July, August and September, 1938	88.75
Prior to July 1, 1938	491.50
Total	<u>\$1,105.18</u>

These accounts are regarded as good and collectible by the management; uncollectible accounts in the sum of \$20.41 having been charged off at the end of the year.

Membership cards were seen in verification of the dues receivable in the sum of \$5,707.00 which is classified by years as follows:

Year 1935 and prior	\$1,136.00
Year 1936	591.00
Year 1937	924.00
Year 1938	3,056.00
Total	<u>\$5,707.00</u>

These delinquent dues, included on the asset side of the Balance Sheet are offset by a reserve account in a like amount pending their collection. Dues are taken up on the books of the Association as income only as they are actually paid. Exhibit D is a statement of dues receivable and membership by counties. The records indicate that there was an increase of 35 members during the year under review and the membership of 3,290 members at December 31, 1938, is classified as follows:

Junior	209
Active	2,850
Honorary	231
Total	<u>3,290</u>

The furniture and fixtures account is stated in the amount of \$1,000.00 which is the same as a year ago. Additions during the year 1938 in the sum of \$33.00 have been charged to expense in lieu of taking depreciation on the equipment account. Fire insurance of \$1,000.00 is carried on the office equipment, books and supplies.

Accounts payable at December 31, 1938, consisted of \$167.10 for supplies and expenses and \$198.89 for advance payments by advertisers. A contingent liability in the sum of \$3,900.00 exists as a result of thirteen malpractice suits reported pending against members and on which the Association is required to furnish assistance in an amount not to exceed \$300.00 in each case under the provision of its By-Laws.

The total cost of defense during the past year was \$200.00.

GENERAL

Fidelity bonds are in effect covering Dr. E. J. Goodwin in the sum of \$1,000.00 and Dr. R. L. Thompson in the sum of \$20,000.00.

The books and records examined by us were found to have been well maintained throughout the year under review. Should you desire any further information, please communicate with us.

Yours very truly,

R. A. LENNERTSON & COMPANY,
By R. A. Lennertson,
Certified Public Accountant.

EXHIBIT A.

Missouri State Medical Association
Balance Sheet as of December 31, 1938

Assets		
Cash:		
General Fund	Exhibit C	\$1,528.12
Legislative Fund		2,761.63
Sinking Fund		4,269.00
Defense Fund		1,220.76
		<u>\$ 9,779.51</u>
Accounts Receivable—Advertisers		1,105.18
Dues Receivable—Exhibit D		5,707.00
Furniture and Fixtures		1,000.00
Advance for Traveling Expense		6.92
		<u>\$17,598.61</u>
Liabilities		
Accounts Payable:		
Supplies and Expense		\$ 167.10
Advance Payments by Advertisers		198.89
		<u>\$ 365.99</u>
Contingent Liability:		
To Members on 13 Malpractice Suits ...		\$3,900.00
Reserve for Uncollected Dues		5,707.00

Reserve for Fund Balances:

General Fund	\$1,528.12
Legislative Fund	2,761.63
Sinking Fund	4,269.00
Defense Fund	1,220.76

9,779.51

Surplus	1,746.11
	\$17,598.61

EXHIBIT B.

Missouri State Medical Association

Statement of Income and Expenses for the Year 1938

	General Activities	JOURNAL Publication	Together
INCOME:			
Dues Received (Includes \$1.00 Per Member Annually for THE JOURNAL) ..	\$18,562.00	\$ 2,760.00	\$21,322.00
Rentals—Annual Session Exhibit Space	680.00		680.00
Rent From Subtenant (Office Space)	540.00		540.00
Subscriptions to THE JOURNAL—Nonmembers		46.85	46.85
Advertising Space—THE JOURNAL		9,747.95	9,747.95
Total Income	\$19,782.00	\$12,554.80	\$32,336.80

EXPENSES:

Officers' Salaries	\$ 5,638.80	\$ 2,819.40	\$ 8,458.20
Office Salaries	2,406.67	1,203.33	3,610.00
Office Rent and Light	1,710.05		1,710.05
Postage	504.44	336.12	840.56
Stationery, Printing and Office Supplies	571.34		571.34
THE JOURNAL—Paper, Printing, Mailing, etc.		6,889.34	6,889.34
Telephone and Telegraph ..	754.61		754.61
Insurance	52.70		52.70
General Expense	855.00		855.00
Bad Debts		20.41	20.41
Cash Discounts to Advertisers		379.08	379.08
Commission on JOURNAL Advertising		894.76	894.76
Traveling Expense	1,118.69		1,118.69
Badges	109.29		109.29
Annual Session	2,184.77		2,184.77
Council Meetings	731.81		731.81
Councilors' Expenses	762.49		762.49
Delegates to A. M. A.	788.25		788.25
Committees and Conferences	1,163.11		1,163.11
Postgraduate Instruction ...	1,395.24		1,395.24
Equipment Purchases			
Charged Off in Lieu of Depreciation	33.00		33.00
Defense—Malpractice Suits ..	200.00		200.00
Total Expense	\$20,980.26	\$12,542.44	\$33,522.70

Net Income or (Loss) for the Period	\$ (1,198.26)	\$ 12.36	\$ (1,185.90)
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EXHIBIT C.

Missouri State Medical Association

Summary of Cash Receipts and Disbursements by Funds for the Year 1938

	General Fund	Legislative Fund	Sinking Fund	Defense Fund
Balance January 1, 1938	\$ 1,348.67	\$ 4,001.63	\$ 4,269.00	\$ 1,420.76
Receipts	47,274.07			
Transfer of Funds	4,000.00	2,760.00		
Total to Be Accounted for	\$52,622.74	\$ 6,761.63	\$ 4,269.00	\$ 1,420.76
Disbursements	\$48,334.62			\$ 200.00
Transfer of Funds	2,760.00	4,000.00		
Total Disbursements	\$51,094.62	\$ 4,000.00		\$ 200.00
Balance December 31, 1938	\$ 1,528.12	\$ 2,761.63	\$ 4,269.00	\$ 1,220.76

Fund Balances on December 31, 1938

General Fund	\$ 1,528.12
Legislative Fund	2,761.63
Sinking Fund	4,269.00
Defense Fund	1,220.76

Total

Represented by:

Cash in Mercantile Commerce Bank and Trust Co.	\$ 9,499.77
Secretary's Account	254.74
Petty Cash Fund	25.00

Total

EXHIBIT D.

Missouri State Medical Association

Dues Receivable and Membership by Counties as of December 31, 1938

Counties	Dues Receivable				Total	Number of paid Members
	1935 and Prior	1936	1937	1938		
Adair-Schuyler-Knox-Sullivan-Putnam	\$ 32	\$ 16	\$ 24	\$ 32	\$ 104	33
Andrew						6
Atchison		8	8	40	56	14
Audrain				16	16	16
Barry				8	8	8
Barton	8	8	8	32	56	10
Bates						11
Benton				8	8	6
Boone	72	32	48	52	204	48
Buchanan				32	112	40
Butler				8	48	18
Caldwell-Livingston	56	16	16	88	176	19
Callaway				8	8	24
Camden						2
Cape Girardeau				48	48	40
Carroll	48	24	24	24	120	9
Carter-Shannon				8	8	7
Cass			8	8	16	20
Chariton						15
Christian	32	8	8	8	56	7
Clay		16	24	76	116	8
Clinton	16	16	16	16	64	10
Cole			8	40	48	8
Cooper	64	24	32	40	160	21
Dallas-Hickory-Polk	8	8	28	44	88	21
De Kalb	24	16	16	24	80	3
Dent						7
Dunklin	64	40	40	56	200	21
Franklin	24	8	8	28	68	21
Gasconade-Maries-Osage	72	23	32	32	159	8
Greene	24	16	16	16	72	8
Grundy	24	24	40	64	152	102
Daviess	24	16	16	32	88	48
Harrison	40	8	8	8	64	6
Henry				8	8	16
Holt				8	8	8
Howard						9
Jackson						578
Jasper				36	36	4
Jefferson				36	36	17
Johnson				8	8	80
Laclede			16	16	32	12
Lafayette			8	16	24	30
Lawrence-Stone	64	16	24	64	168	22
Lewis Clark-Scotland	8	8	16	48	80	13
Lincoln				8	8	9
Linn		8	8	16	32	13
Macon						6
Marion Ralls	16	16	48	56	136	36
Mercer			8	8	16	16
Miller						8
Mississippi				16	16	7
Moniteau						6
Montgomery						6

Morgan						3	
New Madrid	40	16	16	16	88	3	
Newton	32	8	8	16	64	14	
Nodaway	112	56	56	72	296	22	
Pemiscot			8	16	24	16	
Perry						32	4
Pettis	8	8	8	16	40	30	
Phelps Crawford ..			16	24	40	48	23
Pike				8	8		12
Platte			16	40	56		15
Pulaski							6
Randolph-Monroe ..				16	16		27
Ray	16	24	40	48	128		13
St. Charles	8	8	16	24	56		32
St. Francois- Iron-Madison- Washington- Reynolds	48	24	24	48	144		37
St. Genevieve						48	6
St. Louis County ..				96	96		178
St. Louis City	24		16	1040	1080	116	1097
Saline		16	16	24	56		26
Scott		8	8	32	48	8	14
Shelby	24	8	16	16	64		8
South Central		16	32	56	104		31
Stoddard	56	16	16	24	112		11
Taney	48	8	8	16	80		2
Vernon-Cedar				16	16		31
Wayne			8	32	40		4
Webster							4
Totals	\$1136	\$591	\$924	\$3056	\$5707	\$688	3290

LECTURES ON PEDIATRICS AND OBSTETRICS

Lectures to the laity on pediatrics and obstetrics being given under the auspices of the State Board of Health, the Committee on Maternal Welfare of the State Association and the Extension Service of the University of Missouri College of Agriculture are scheduled as follow for April and May:

PEDIATRICS

Date	County	County Extension Agent
April 3	Stoddard	C. H. Alspaugh, Bloomfield
4	Bollinger	Harold Lemar, Marble Hill
5	Wayne	John M. Baldwin, Greenville
6	Butler	W. F. James, Poplar Bluff
7	Medical Group	
10-12	Missouri State	Medical Association
17-18	Howell	Earl Allen, West Plains
19	Texas	George P. Smith, Houston
20	Wright	Ray Hargrave, Hartville
21	Medical Group	
24	Ozark	R. P. Christeson, Gainesville
25-26	Douglas	A. T. Goodding, Ava
27	Taney	Cloin Penner, Ozark
28	Medical Group	
May 1	Ripley	T. P. Head, Doniphan
2	Carter	Ted L. Joule, Ellington
3	Shannon	Robert L. Bridges, Eminence

Date	County	County Extension Agent
4	Oregon	Norman Dickey, Alton
5	Medical Group	
8	Barry	T. T. McConnell, Cassville
9-10	Newton	F. H. Darnall, Neosho
11	McDonald	R. J. Martin, Pineville
12	Medical Group	
15-19	American Medical Association	
22-23	Clinton	Andrew Adam, Plattsburg
26	Boone	Wendell Holman, Columbia
27	Callaway	Harold Slusher, Fulton
29-30	Jackson	E. M. Woods, Independence

May 31-

June 1	Cass
June 2	Medical Group

OBSTETRICS

Date	County	County Extension Agent
April		
3-4	Gentry	L. A. Saunders, Albany
5	Worth	Drew E. Bellairs, Grant City
6	Harrison	H. B. Steele, Bethany
7	Medical Group	
10-12	Missouri State	Medical Association
17	Putnam	C. E. Neff, Unionville
18-19	Adair	Smith T. Powell, Kirksville
20	Schuyler	Alva Mix, Lancaster
21	Medical Group	
24	Scotland	C. R. Pitney, Memphis
25	Knox	Paul Bebermeyer, Edina
26	Lewis	Arnold Barber, Monticello
27	Clark	Jamie Naggs, Kahoka
28	Medical Group	
May 1-2	Grundy	Albert Hagan, Trenton
3	Mercer	Miller Carpenter, Princeton
4	Sullivan	Rolla A. Baugher, Milan
5	Medical Group	
8-9	Howell	Earl Allen, West Plains
10	Texas	George P. Smith, Houston

Date	County	County Extension Agent
11	Wright	Ray Hargrave, Hartville
12	Medical Group	
15-19	American Medical Association	
22-23	Greene	C. C. Keller, Springfield
24-25	Cooper	Paul N. Doll, Boonville
26	Boone	Wendell Holman, Columbia
27	Callaway	Harold Slusher, Fulton
June 5-6	Newton	F. H. Darnall, Neosho
7	McDonald	R. J. Martin, Pineville

Secretaries of these counties are urged to contact the Extension Agent in his county and make arrangements for these lectures.

MISCELLANY

THE WAGNER BILL

Concerning the bill introduced into the Senate of the United States on February 28 by Senator Wagner of New York, the *Journal of the American Medical Association* of March 11 commented editorially as follows:

On February 28 Senator Wagner of New York introduced into the Senate of the United States a bill to provide for the general welfare by enabling the states to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance, and training of personnel.

This bill had been announced again and again in newspaper publicity since the day when Congress convened. Much secrecy surrounded its preparation and development. Apparently up to the moment of its introduction even Mr. Wagner himself and his office were not sure as to just what the bill would include. On one day the press would state that it was proposed to include compulsory sickness insurance. A few days later it would be rumored that such inclusion was not contemplated. Obviously it is the purpose of the measure to begin fulfilment of the so-called National Health Program, although the measure is, in many of its recommendations, exceedingly vague.

Essentially the measure embarks on a three year program providing more than \$97,000,000 the first year, and subsequent grants in ensuing years, indeterminate in amount except in a few particulars, but sufficient to make effective the purposes of the bill.

The House of Delegates of the American Medical Association, in considering the National Health Program, approved expansion of public health service where need could be shown, approved medical care to the indigent and to the medically indigent where need could be shown, and even approved expansion of hospital construction, provided the need could be demonstrated, recommending, however, utilization of existing facilities to the utmost before a new building program was authorized. The House of Delegates also approved

the principle of assistance to the worker for temporary disability resulting from illness. Now the Wagner act goes far beyond these recommendations: First, it authorizes the expenditure of vast sums before the need has been shown; second, it expands tremendously the work of the Children's Bureau, the United States Public Health Service and the Social Security Board, without any demonstration that such expansion is warranted; third, it proposes to place the state health officers in a commanding position as far as concerns the dispensing of the funds allotted, subject only to approval of all plans by the federal agency to which the task is assigned. Vast funds are provided for the construction of hospitals and health centers and for their maintenance, notwithstanding the fact that there is not yet available any dependable determination of the exact nature and extent of needs that prevail. Who can imagine for a moment that the money once appropriated will not be expended? Finally, the measure introduces the principle of allotment of federal money to the individual states for medical care, by the Social Security Board, without specifying the means to be used in the individual states for providing such service other than to demand the approval of the Social Security Board.

The advisory councils to be set up are vague as to their membership, their duties and their responsibilities. There is one criticism that is to be made above all others in relationship to this proposed legislation, namely its extreme vagueness in the light of the vast sums of money to be dispensed and the great powers conferred on certain federal officers in the control of the spending, and particularly the decision as to which of the individual states shall benefit by the expenditures.

OBITUARY

E. LOYD CARTWRIGHT, M.D.

Dr. E. Loyd Cartwright, Springfield, a graduate of the St. Louis University School of Medicine, 1926, died of a kidney infection at the Missouri Baptist Hospital, St. Louis, on December 30, 1938, aged 37 years.

Dr. Cartwright was born in Barry County and attended school in that county and the State Teachers' College at Springfield. He taught school for a year before beginning his study of medicine. After an internship in the Missouri Baptist Hospital, St. Louis, and postgraduate study in obstetrics, he began practice in Springfield August 1, 1938, confining his practice to obstetrics. He was on the staffs of the Springfield Baptist and Burge hospitals.

He is survived by his widow, Mrs. Eleanor Cartwright, his mother, a sister and two brothers.

EUGENE M. ALLEE, M.D.

Dr. E. M. Allee, Speed, a graduate of the Beaumont Hospital Medical College, St. Louis, 1892, died after a long illness at his home on August 28, 1938, aged 71 years.

Dr. Allee was born in Moniteau County and received his early education there before attending Clarksburg College and William Jewell College. After completing his medical education he began his practice in California but moved to Speed in 1895 and remained in practice there until ill health compelled him to become less active. He was often referred to as "the leading citizen of Speed." In addition to his practice he operated a drug store and at the time of his death was vice president of the Bank of Speed.

He is survived by his widow, one daughter, two sisters and one brother.

HARRY BAY, M.D.

Dr. Harry Bay, Cole Camp, a graduate of Barnes Medical College, St. Louis, 1904, was instantly killed on October 27, 1938, when his car was struck by a train. He was 59 years old. He was on a professional call at the time of the accident.

Dr. Bay was born in Crown City, Ohio. He moved to Missouri at the time he began the study of medicine. He began his practice at Florence, Missouri, and after three years moved to Cole Camp where he remained in practice until his death. In his thirty years of practice in that community he had endeared himself to friends and patients throughout Benton County and his death was widely mourned.

Surviving are his widow, a son and a daughter.

G. A. DELAMATER, M.D.

Dr. G. A. Delamater, Butler, a graduate of the Chicago Homeopathic Medical College, 1893, died at Winter Haven, Florida, on December 22, 1938.

Dr. Delamater began his practice at Rock Rapids, Iowa, where he remained until 1895 when he went to Kansas City to accept a post as teacher of pathology in the Kansas City Homeopathic College. One year later he located in Rich Hill where he remained until 1932 when he moved to Butler where he had maintained his home and office. In 1902 he established a private hospital at Rich Hill. During his long residence in Rich Hill Dr. Delamater took a prominent and active part in civic affairs in which he was a respected leader and was accorded the same respect in Butler.

For a number of years Dr. Delamater had spent a part of each year in Florida where he had acquired a citrus fruit orchard and other real estate interests and he was there when he died.

Dr. Delamater is survived by his widow, one daughter, one son, three sisters and one brother.

C. V. MARTIN, M.D.

Dr. C. V. Martin, Maryville, a graduate of the Hahnemann Medical College and Hospital, Chicago, 1901, died September 25, 1938, after a three years illness, aged 59 years.

Dr. Martin was born at LaHarpe, Illinois. When he was 8 years old he went to Maryville with his parents, the late Dr. and Mrs. Francis Martin. He attended the Maryville public schools and the Maryville Seminary before beginning his study of medicine. He began his practice in Chicago and remained there until 1909 when he returned to Maryville to practice with his father.

During the World War he was a captain in the students' training corps at the Maryville Normal School. He was a Thirty-second Degree Mason, a Knight Templar and a member of the Phi Epsilon Rho Fraternity. He was president of the Nodaway County Medical Society in 1920 and vice president at the time of his death.

Surviving are his widow, Mrs. Margaret Forrest Martin, a son, Dr. Forrest Martin, Boston, a daughter and two sisters.

BOOKS FOR LEISURE MOMENTS

THE HORSE AND BUGGY DOCTOR

Did you ever drive through the country on a pleasant afternoon in a horse and buggy? You had time to look around and observe what was about you. There were things to laugh at, things to enjoy and things to

sadden and at the intersections the tempo of the observations became a little faster. "The Horse and Buggy Doctor" by Dr. Arthur E. Hertzler, Halstead, Kansas, (Harper & Brothers, New York) is well named not only because it describes so well the practice of medicine in the horse and buggy days but also because it is such a pleasure to read. It does not have the breath taking climaxes of the "thriller" but interest never lags. Driving in the horse and buggy there are no narrow escapes but always something of interest to see. However, the horse and buggy doctor did have narrow escapes as Dr. Hertzler graphically and humorously tells.

The book is an autobiography of Dr. Hertzler's life from the time of his childhood and his early remembrance of the prayers of his father to protect the children from an epidemic of diphtheria. His was a life of struggle but with an ever present determination to accomplish the things he set out to do. It is not only the story of Dr. Hertzler's life but also of many physicians of his day and of the growth of the science of medicine in the last fifty years.

It is written in an impersonal tone, the publisher's statement that it was begun as a story for his small grandson to read some day being by far the most personal note in the book. Probably that much more credit goes to Dr. Hertzler for making the book so engrossing without asking the reader for pity at the hardships or praise at the accomplishments. It would not be Dr. Hertzler's book if there was not some substantial philosophy included, most of it worded in droll or amusing manner. And his philosophy is not restricted to the physician but includes the patient.

Those who know Dr. Hertzler will feel that he is telling them the story rather than that they are reading it so true to his style of conversing is it. But the person who does not know him will enjoy this style just as thoroughly in the book as they do when hearing him speak for the first time.

Dr. Hertzler has accomplished many things which early in his life he determined to accomplish, but this book which was not included in his early ambitions must be added as outstanding among his accomplishments.

ON MIASMATA AND CONTAGIA

We have had the pleasure of reviewing on several previous occasions the excellent translations of manuscripts of exceeding historic interest published by the Johns Hopkins Press. In the present instance we must depend upon the preface of the translator for an understanding of what must have been an extremely important publication in the year 1840: "On Miasmata and Contagia," by Jacob Henle (The Johns Hopkins Press, Baltimore, Maryland).

The translator, Dr. George Rosen, states that he has preserved the original text in the translation so that we may understand the hindrance which it offered to the rapid spread of its author's ideas. In effect, Henle postulated the existence of a multitude of micro-organisms which must act as the causative agent in disease. It remained for his pupil, Koch, to prove the correctness of the master's concept.

Dr. Rosen writes, "The lack of a satisfactory terminology . . . can bring to a standstill the most promising advances. . . . The importance of this factor in preventing the rapid acceptance of Henle's theory should not be underestimated. . . . The circumlocutory manner in which he expresses his ideas tends to cloud the logical clarity of his thought."

We hope that in future publications of this series the Johns Hopkins Press will choose from among incunabula which will be easily understood by the average physician. Or failing that, that they will instruct the translator to take sufficient liberty with the original text to make it intelligible.

B. Y. G.

MISSOURI STATE MEDICAL ASSOCIATION

82nd Annual Meeting, Elms Hotel, Excelsior Springs

The 82nd Annual Session of the Association convenes at the Elms Hotel, Excelsior Springs, Monday, Tuesday and Wednesday, April 10, 11 and 12, 1939.

HOUSE OF DELEGATES

Ballroom, Elms Hotel

First Meeting—Monday, April 10, 1939—9:30 a. m.

Order of Business

Report of Committee on Credentials.
Reading of Minutes of Previous Meeting.
Reading of President's Message and Recommendations.
Appointment of Reference Committees:
 Committee on Amendments to Constitution and By-Laws.
 Committee on Resolutions.
 Committee on Miscellaneous Affairs.
 Committee on Medical Education and Public Welfare.
Report of General Committee on Arrangements: A. S. Bristow, Princeton, Chairman.
Report of Local Committee on Arrangements: David E. Musgrave, Excelsior Springs, Chairman.
Report of the Secretary.
Report of the Treasurer.
Report of the Committee on Scientific Work: James E. Stowers, Kansas City, Chairman.
Report of the Committee on Postgraduate Course: C. H. Neilson, St. Louis, Chairman.
Report of the Committee on Publication: Walter Baumgarten, St. Louis, Chairman.
Report of the Committee on Public Policy: Morris B. Simpson, Kansas City, Chairman.
Report of the Committee on Defense: Charles E. Hyndman, St. Louis, Chairman.
Report of the Committee on Medical Education and Hospitals: L. W. Dean, St. Louis, Chairman.
Report of the Committee on Cancer: Dudley A. Robnett, Columbia, Chairman.
Report of the Committee on Medical Economics: Carl F. Vohs, St. Louis, Chairman.
Report of the Committee on Mental Health: G. Wilse Robinson, Sr., Kansas City, Chairman.
Report of the Committee on Maternal Welfare: Ralph R. Wilson, Kansas City, Chairman.
Report of the Committee on Health and Public Instruction (McAlester Foundation): A. R. McComas, Sturgeon, Chairman.
Report of Committee on Constitution and By-Laws: Floyd H. Spencer, St. Joseph, Chairman.
Report of Special Committees:
 Committee on Fractures: M. L. Klinefelter, St. Louis, Chairman.
 Committee on Study of Medical Practice Act: Lee D. Cady, St. Louis, Chairman.
 Committee on Physical Therapy: A. J. Kotkis, St. Louis, Chairman.
 Committee on Medical-Legal Affairs: James R. McVay, Kansas City, Chairman.
 Committee on Study of Control of Syphilis: G. V. Stryker, St. Louis, Chairman.
 Committee on Survey of Medical and Hospital Facilities in Missouri: Carl F. Vohs, St. Louis, Chairman.
 Committee on Conservation of Eyesight: C. P. Dyer, St. Louis, Chairman.
Appointment of Committee on Nominations.
Unfinished Business.

Recess Until 4:00 p. m.

Report of the Council: Curtis H. Lohr, St. Louis, Chairman.
Report of Reference Committees:
Committee on Amendments to the Constitution and By-Laws.
Committee on Resolutions.
Committee on Miscellaneous Affairs.
Committee on Medical Education and Public Welfare.
New Business (Resolutions, Memorials, etc.)
Selection of Place of Next Session.

Second Meeting—Wednesday, April 12, 1939—3:00 p. m.

Group Medical and Hospital Care.
Report of Committee on Credentials.
Reading of Minutes.
Election of Officers:
Election of President-Elect.
Report of Committee on Nominations.
Report on Election of Councilors.
Installation of President.
Nominations for Standing Committees by President and Confirmation by House of Delegates.
Unfinished Business.

GENERAL MEETING

Monday, April 10, 1939—1:30 p. m.—Ballroom, Elms Hotel

Surgery of Acute Cholecystitis I. Mims Gage, M.D., New Orleans

Clinical Use of Sulfanilamide and Its Derivatives

—Alexis F. Hartmann, M.D., St. Louis

Clinical use of sulfanilamide and one of its derivatives, sulfapyridine, will be discussed, particularly from the standpoints of indications, dosage, toxicity and means of minimizing toxicity. Illustrated by lantern slides and motion picture.

The Conduct of Normal Labor and Its Abuses

—J. C. Litzenberg, M.D., Minneapolis

The Male Sex Hormone W. Merritt Ketcham, M.D., Kansas City

A brief résumé of the history of the development of the male sex hormone is presented and facts regarding the present day knowledge of the chemistry of testosterone propionate. The anatomy and histology of the testicle is discussed briefly. The effect of castration in various animals and man is discussed. The indications for the use of the male sex hormone are discussed under the following headings: hypogonadism; benign prostatic hypertrophy with excessive nocturia; the male climacteric; impotence; functional uterine bleeding in the female; inhibition of lactation during the first few days after delivery, and severe menopausal symptoms in the female castrate. A review of the reported observations in 200 cases following the use of testosterone propionate is given. A number of case reports are included.

MATERNAL WELFARE COMMITTEE

Annual Dinner

Monday, April 10, 1939—6:30 p. m.—Clubroom, Elms Hotel

Selected Case Reports of Maternal Deaths

—Members of the Missouri State Medical Association

Critique of Submitted Maternal Death Reports

—J. C. Litzenberg, M.D., Minneapolis

All members are invited to attend this meeting and participate in the round table discussion. Important announcements will be made relative to the American Congress on Obstetrics and Gynecology in Cleveland, Ohio, September 11 to 15, 1939.

Tickets may be obtained at the registration desk.

GENERAL MEETING

Tuesday, April 11, 1939—8:30 a. m.—Ballroom, Elms Hotel

Address of the PresidentB. W. Hays, M.D., Jackson

Address of the President-ElectJames R. McVay, M.D., Kansas City

Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis

—John J. Boucek, M.D., Charles E. Gerson, M.D., and Andrew C. Henske, M.D., St. Louis.

A brief review of the literature on this latest development in the treatment of pulmonary tuberculosis is given. A report based on a study of fifty patients treated by this method at Mt. St. Rose Sanatorium is presented with eleven case reports, illustrated by lantern slides. The indications and contraindications are given together with the mechanical and physiological effects brought about by the use of this procedure. The results obtained by this method are compared with various other accepted forms of treatment with statistics. An attempt is made to evaluate its usefulness and its future place in our therapeutic armamentarium in handling of advanced cases of pulmonary tuberculosis.

Surgical Aspects of Peptic UlcerWarren H. Cole, M.D., Chicago

There is now a general agreement that surgical therapy of peptic ulcer should be confined to the treatment of its complications. Duodenal ulcers should not be operated on without thorough trial on medical therapy. Complications such as hemorrhage, perforation and stenosis are, with very few exceptions, indications for surgery. Occasionally operation may be advisable in duodenal ulcers which have been treated adequately from the medical standpoint but which do not respond. The presence of an ulcer in the stomach is usually an indication for operation.

Internal Fixation of Fractures of the Neck of the Femur

—O. P. Hampton, Jr., M.D., and J. Edgar Stewart,* M.D., St. Louis

The treatment of this fracture was unsatisfactory until about 1931; the mortality was high, results poor and methods of treatment painful and discouraging. Since that time internal fixation has become established as the best method. The fundamentals are outlined and the technic demonstrated. Blind nailing under general anesthesia is recommended. The advantages are: greater chance of union, no casts, minimum hospitalization and improved general condition because the patient may be in a wheel chair and walking on crutches after several weeks.

Acute Trauma of the Abdominal Viscera (Subcutaneous Injury of the Abdomen)I. Mims Gage, M.D., New Orleans

Clinical Studies of Vitamin K.G. O. Broun, M.D., St. Louis

The Crippled Child in MissouriArcher O'Reilly, M.D., St. Louis

There are between ten and eleven thousand more common types of crippling. Discussion will be of provisions for state care of crippled children and of private agencies with the function of each; importance of education, vocational training and placement of the cripple; the present facilities for providing these, and future needs.

ROUND TABLE DISCUSSION

Tuesday, April 11, 1939—12:00 noon—Clubroom, Elms Hotel

Luncheon Meeting

SurgeryI. Mims Gage, M.D., New Orleans

MedicineFred M. Smith, M.D., Iowa City,
and Ralph A. Kinsella, M.D., St. Louis

*Deceased.

GENERAL MEETING

Tuesday, April 11, 1939—2:00 p. m.—Ballroom, Elms Hotel

The Treatment of Depressions and Melancholias

—G. Wilse Robinson, Jr., M.D., Kansas City

The importance of correct psychobiologic interpretations when the practitioner is faced with a state of depression or melancholia in one of his patients is brought out. The glandular background will be discussed in full since it is commonly considered that this is the important factor. Evidence will be presented to show that glandular dysfunctions are a minor part of the etiology and that glandular therapy is probably futile, especially in the severe cases. A number of "rules of thumb" will be given for the treatment of these cases. Metrazol convulsive shock as it applies to these cases, a form of treatment which has been beneficial, will be discussed.

The Worker's Hand Sumner L. Koch, M.D., Chicago

Recent Developments in the Treatment of Lobar Pneumonia

—Raymond O. Muether, M.D., St. Louis

The Diagnosis and Treatment of Coronary Thrombosis

—Fred M. Smith, M. D., Iowa City

Reputed Incompatibility Between Angina Pectoris and Congested

Heart Failure Drew Luten, M.D., St. Louis

The Modern Approach to the Problem of Acute Hematogenous

Osteomyelitis Jacob Kulowski, M.D., St. Joseph

Forty-six cases observed in St. Joseph by nine surgeons will be analyzed. Recent literature will be reviewed. Early treatment will be emphasized.

GENERAL MEETING

Wednesday, April 12, 1939—8:30 a. m.—Ballroom, Elms Hotel

The Value of X-Ray Diagnosis as It Pertains to the Physician in

General Practice B. R. Kirklin, M.D., Rochester, Minn.

Modern Trends in the Treatment of Schizophrenia

—William Malamud, M.D., Iowa City

The recent introduction of the so-called shock method (insulin and metrazol) in the treatment of schizophrenia or dementia praecox and the astoundingly high proportion of cures reported by some of its proponents have given rise to a great deal of interest in the work with these patients, but at the same time have instigated further studies designed to check up on the actual validity of these methods. This paper is based on a long series of patients suffering from this disease and treated at the Iowa State Psychopathic Hospital and a review of reports of other workers in this field. The object is to compare the results obtained by methods previously established and at present still considered valid with the outcome of insulin and metrazol treatment. Time permitting, an attempt will be made to discuss the physiological and psychological mechanisms involved.

Accomplishments of Modern Chest Surgery

—Evarts A. Graham, M.D., St. Louis

The Status of Sympathectomy for Hypertension

—A. W. Adson, M.D., Rochester, Minn.

Essential hypertension is a disease characterized by abnormally high elevations of both systolic and diastolic blood pressures, the origin of which has not been definitely determined except that there is a hereditary tendency. The course of the disease varies from that of slow progress to one of rapid progress with fatal termination. Since it is resistant to medical management and presents vasomotor phenomena, sympathectomies have been employed as therapeutic measures. The operative results justify a continuance of sympathectomies. Selection of suitable cases is necessary.

Pneumonia in ChildhoodWalter M. Whitaker, M.D., Quincy, Ill.

This paper deals with a general résumé of the etiological factors, clinical types and important diagnostic differences in the pneumonias of childhood as compared with those seen in adults. A discussion of the important points influencing the prognosis is included. Newer aspects concerning the indications for and clinical application of sera and chemotherapy with other methods of treatment which have been valuable in the hands of the author conclude the paper.

ROUND TABLE DISCUSSION

Wednesday, April 12, 1939—12:00 noon—Clubroom, Elms Hotel

Luncheon Meeting

SurgeryEvarts A. Graham, M.D., St. Louis

PediatricsWalter M. Whitaker, M.D., Quincy, Ill.

GENERAL MEETING

Wednesday, April 12, 1939—2:00 p. m.—Ballroom, Elms Hotel

The Role of the Ellis Fischel State Cancer Hospital in the Control
of Cancer in MissouriFred. J. Taussig, M.D., St. Louis

This paper will discuss general arrangement and proposed equipment of the new State Cancer Hospital at Columbia; changes and improvements made possible by the PWA grant; progress in the development of new tumor clinics; close cooperation with the Cancer Committee of the Missouri State Medical Association; plans for the future in the cancer control program, and Missouri as a leader in the development of a state wide plan for early recognition and prompt and suitable treatment of cancer.

Missouri Cancer Survey, 1938Paul F. Cole, M.D., Springfield

Missouri's cancer problem will be reviewed including mortality with distribution of cases from various parts of the state referred to the Cancer Commission up to the present time.

At 3:00 p. m. the General Meeting will adjourn and the House of Delegates will immediately go into session.

Group Medical and Hospital CareCarl F. Vohs, M.D., St. Louis

All members of the General Assembly are invited to participate in the discussion of this presentation.

COMMERCIAL EXHIBITS

Lobby, Elms Hotel

MEAD JOHNSON & COMPANY, EVANSVILLE, IND. BOOTH 1.

Three new Mead products are on display at Mead Johnson & Company's booth: Mead's Thiamin Chloride Tablets; Mead's Cevitamic Acid Tablets; Mead's Nicotinic Acid Tablets. Olac for feeding premature babies is also shown as well as the complete line of Mead's Infant Diet Materials.

THE MEDICAL PROTECTIVE COMPANY, WHEATON, ILL. BOOTH 2.

The most exacting requirements of adequate liability protection are those of the professional liability field. The Medical Protective Company, specialists in providing protection for professional men, invites you to confer with their representative at their booth. He is thoroughly trained in professional liability underwriting.

ELI LILLY AND COMPANY, INDIANAPOLIS, IND. BOOTH 3.

Eli Lilly and Company is presenting a new display featuring Ergotrate (Maleate of a new Ergot Base, Lilly); Bilron (Iron Bile Salts, Lilly); Estrone and Estriol; Diphtheria Toxoid-Tetanus Toxoid Combined; Alum Precipitated, and Metycaine (Gamma- (2-methyl-piperidino) -propyl Benzoate Hydrochloride, Lilly).

HORLICK'S MALTED MILK CORPORATION, RACINE, WIS. BOOTH 4.

A treat for the well, a boon for the sick and convalescent! Horlick's, the Original Malted Milk, combines the unique advantages of a refreshing beverage with those of a nutritious food of remarkable digestibility. You will enjoy a call at the Horlick's booth where samples of Horlick's Malted Milk Tablets, the delicious food confection, are being distributed.

LEDERLE LABORATORIES, INC., 30 ROCKEFELLER PLAZA, NEW YORK, 225 DIERKS BLDG., KANSAS CITY. BOOTH 5.

Lederle Laboratories, Inc., are exhibiting among other things Anti-Pneumococcic Sera Rabbit, Therapeutic (of which Lederle is the only laboratory producing twenty-six of the thirty-two types); Scarlet Fever for prevention and treatment; Solution Liver Extract; Measles Immune Globulin (for prevention and treatment) and Vitamin B Complex, both oral and parenteral. Samples of their new Vitamin B Complex are available. They are also displaying Pollen Antigens.

THE W. E. ISLE COMPANY, 1121 GRAND AVE., KANSAS CITY. BOOTH 6.

The W. E. Isle Company are featuring the Isle-Built Limbs which were awarded the seal of approval by the American College of Surgeons and are also showing the latest orthopedic appliances, surgical supports for men and women, elastic hosiery, crutches and canes. All members are invited to visit the booth and to visit the company in Kansas City.

PHILIP MORRIS & COMPANY, 119 FIFTH AVE., NEW YORK. BOOTH 7.

Philip Morris & Company are demonstrating the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject and problems on the physiological effects of smoking.

A. S. ALOE COMPANY, 1819 OLIVE ST., ST. LOUIS; BRYANT BUILDING, KANSAS CITY. BOOTHS 8 AND 9.

The A. S. Aloe Company are displaying a general line of surgical instruments and equipment for the physician and hospital. The new Aloe Short Wave Diatherm and many other specialties are featured. Mr. J. A. Hensler, Aloe representative, will supply those interested with brochures on Aloe Steeline, the most modern creation in physicians' fine treatment room furniture, and will be glad to render any possible service.

JOHN WYETH & BROTHER, INC., 1118 WASHINGTON AVE., PHILADELPHIA. BOOTH 10.

John Wyeth & Brother are displaying a number of their pharmaceutical specialties including Kaomagma, intestinal absorbent; Amphojel, Wyeth's Alumina gel, antacid; Silver Picrate, "accepted" for use in the treatment of Trichomonas vaginitis; Bewon Elixir, a palatable dosage form of crystalline Vitamin B₁; Ergoklonin, the council accepted ergot alkaloid Ergonovin in ampouls and liquid.

PEVELY DAIRY COMPANY, 1001 S. GRAND, ST. LOUIS. BOOTH 11.

Pevely Dairy is exhibiting their Council Accepted Evaporated Milk. The use of evaporated milk has been quite universally adopted in infant feeding and has done a great deal to simplify dietary problems. It is always uniform in composition, easy to prepare and its economic cost is a great added feature.

McINTOSH ELECTRICAL CORPORATION, 223 CALIFORNIA AVE., CHICAGO. BOOTH 12.

The McIntosh Electrical Corporation is exhibiting (1) the new No. 1400 Polysine Generator which embodies new radical engineering improvements. (2) The Premier Model Brevatherm which gives enviable performance with air-spaced plates, pads, cuffs and induction cable; facilities for tissue-cutting, coagulation, desiccation. (3) The Advance Model Brevatherm, accepted by the Council on Physical Therapy, affording maximum performance at minimum cost. (4) Biolite Infra-red Generators at low prices. Mr. Paul W. Read, a capable physiotherapy technician, is in charge of the booth.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

Dent County Medical Society, January 25, 1939.

Stoddard County Medical Society, January 30, 1939.

Howard County Medical Society, February 15, 1939.

Macon County Medical Society, February 22, 1939.

Johnson County Medical Society, February 25, 1939.

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Caldwell-Livingston County Medical Society

The Caldwell-Livingston County Medical Society met at the Chillicothe Hospital on February 7 with the president, Dr. H. S. Dowell, Chillicothe, presiding.

Dr. Reuben Barney, Chillicothe, presented an interesting case of undescended testes with case history showing the result of treatment with anterior-pituitary substance.

Dr. G. S. Dowell, Braymer, presented a case of chronic cystic mastitis.

The secretary was instructed to write representatives and senators expressing the disapproval of the Society of House Bill No. 111 and House Bill No. 152 and the hearty endorsement of Senate Bill No. 29.

The report of the Kiwanis Club who had furnished laboratory equipment for the Chillicothe Hospital was received and a vote of thanks was extended.

Members present were Drs. H. H. Patterson and G. S. Dowell, Braymer; E. A. Thompson, Breckenridge; Reuben Barney, D. M. Dowell and H. S. Dowell, Chillicothe.

The next meeting of the Society will be held at the Chillicothe Hospital on March 6.

E. A. THOMPSON, M.D., Secretary.

SECOND COUNCILOR DISTRICT

H. B. GOODRICH, HANNIBAL, COUNCILOR

Randolph-Monroe County Medical Society

The Randolph-Monroe County Medical Society met at the Public Library Building, Moberly, on February 14.

Dr. F. A. Barnett, Paris, discussed "The Insulin Treatment of Schizophrenia at the Fulton Hospital." A general discussion followed.

Members present were Drs. J. F. Flynt and F. A. Barnett, Paris; P. V. Dreyer, Huntsville; L. E. Huber, F. L. McCormick, L. O. Nickell, J. M. Black, M. P. Hunter, M. R. Noland, C. C. Smith, R. D. Streeter and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

FOURTH COUNCILOR DISTRICT

R. B. DENNY, CREVE COEUR, COUNCILOR

Jefferson County Medical Society

The Jefferson County Medical Society met at Herculaneum on February 17.

The following officers were elected: President, Dr. Oliver E. Hensley, Herculanum; vice president, Dr. Oliver F. Reich, Kimmswick; secretary-treasurer, Dr. Charles E. Fallet, DeSoto; delegate, Dr. Walter E. Gibson, Sr., DeSoto; alternate, Dr. Karl V. McKinstry, DeSoto.

CHARLES E. FALLET, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR

Boone County Medical Society

The Boone County Medical Society met at the Harris Cafe, Columbia, at 6:30 p. m. February 7. In the absence of the president and vice president the secretary appointed Dr. M. Pinson Neal, Columbia, to preside.

Dr. C. M. Sneed, Columbia, chairman of the committee on lay projects reported favorably on Group Hospital Service, Inc. The secretary pointed out that the Society on October 4, 1938, voted to approve any such project which the State Association endorsed. It was voted to inform Mr. Ray McCarthy, Group Hospital Service, St. Louis, and the hospitals of the Society's actions.

Dr. M. Pinson Neal, Columbia, read a resolution on the death of Dr. R. R. Robinson, Columbia.

The name of Dr. W. E. Belden, Columbia, was proposed for honor membership, and according to custom the nomination was tabled for one month.

The application of Dr. Leo L. Grzesk for membership by transfer from the Randolph-Monroe County Medical Society was read.

The application of Dr. Maxwell Palmer, Columbia, resident physician at Stephens College, was read.

The secretary read the request of the American Committee on Maternal Welfare for approval of the Society for the showing of the film, "The Birth of a Baby" in the theaters in Boone County. After discussion it was decided to reaffirm the action of the Council and approve the showing of the picture to selected audiences but not publicly.

Dr. M. Pinson Neal was instructed to send a letter of condolence to the family of Tom McHarg for the Society.

The committee on public health and legislation and Dr. C. M. Sneed, member of the auxiliary committee on public policy, were instructed to contact legislators in an effort to prevent the passage of House Bill No. 111.

Drs. Harold G. Newman and Omer E. Hagebusch, St. Louis, discussed "Undulant Fever." Dr. Newman talked on the clinical aspects and Dr. Hagebusch discussed the pathology and the various agglutination tests now available for its identification. The paper was discussed by Dr. A. J. Durant, Columbia.

M. E. COOPER, M.D., Secretary.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

South Central Counties Medical Society

The South Central Counties Medical Society met at the Horton Hotel, Willow Springs, at noon on February 9 with the following members and guests present: Drs. H. A. Hassett, Charles A. Stone and R. K. Earp, St. Louis; H. G. Frame and R. A. Ryan, Mountain Grove; E. C. Bohrer and E. R. Bohrer, West Plains; C. F. Callihan, Willow Springs; J. R. Mott, Hartville; L. M. Dillman and J. R. Womack, Houston; T. W. Cotton, Van Buren; W. T. Eudy, Eminence; R. I. Davis, Birch Tree; C. H. Diehl, Salem; H. B. Hull, Mammoth Springs, Arkansas, and Mr. Ray Parsons, Willow Springs.

It was agreed to remit all dues except those for 1938 and 1939 for all delinquent members.

The Society unanimously disapproved House Bill No. 111 and the secretary was instructed to write representatives and senators of the district.

Mr. Ray Parsons, Willow Springs, spoke on "The Safety Program of the State Highway Department."

Dr. H. A. Hassett, St. Louis, talked on "Surgical Treatment of Highway Injuries."

Dr. Charles A. Stone, St. Louis, discussed "Orthopedic Management of Some Aspects of Highway Injuries."

The program was well received and the speakers were given a vote of thanks.

Dr. H. B. Hull, Mammoth Springs, Arkansas, presented a patient with tularemia.

The next meeting will be held in Mountain Grove on March 9 with "Syphilis" as the topic for discussion.

E. R. BOHRER, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

A dinner meeting of the Cape Girardeau County Medical Society was held at the Colonial Tavern, Cape Girardeau, on February 15 with thirty-one members present.

Before the dinner a short business session was held.

A letter, presented by Mrs. James Finch, Jr., on behalf of an organization styled the "Gray Ladies" inquired whether the Society would object to the organization visiting patients, to entertain them or run errands for them. After some discussion the Society decided to recommend that they not proceed with the plan.

The committee on economics presented their interpretation of a prepayment medical plan submitted for consideration by the State Association. After discussion it was felt that it should be carefully studied.

The president and secretary announced their intention of going to Jefferson City on February 19. Views were expressed encouraging them to favor the Basic Science and the Registration bills and to object to House Bills Nos. 152 and 111.

Dr. Quitman U. Newell, St. Louis, spoke on "Inflammatory Diseases of the Female Pelvic Organs." This was followed by a round table discussion.

The meeting adjourned after Dr. M. H. Shelby, who had introduced the speaker, expressed the thanks of the Society.

C. A. W. ZIMMERMANN, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

17th Annual Meeting, St. Louis

President, Mrs. C. C. Tomlinson, Omaha, Nebraska.

President-Elect, Mrs. Rolla K. Packard, Chicago.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

15th Annual Meeting, Excelsior Springs

President, Mrs. Herbert L. Mantz, Kansas City.

President-Elect, Mrs. Paul F. Cole, Springfield.

W. A. A. M. A., MAY 15-19, 1939, CHASE HOTEL

Registration

Registration for St. Louis women and preconvention guests will be on Saturday from 1 p. m. to 4 p. m. and on Sunday from 10 a. m. to 4 p. m. Registration for guests will be conducted daily during the session from 8:30 a. m. to 4 p. m. except on May 19 registration will close at 11 a. m.

Program

Sunday, May 14

- 10:00 a. m. to 4:00 p. m. Registration. Hostess committee to receive visitors in the afternoon.
- 4:00 p. m. to 7:00 p. m. Tea for the National Board in honor of Mrs. Charles C. Tomlinson. Mrs. Willard Bartlett, hostess, board of St. Louis Auxiliary, vice chairman and chairmen of committees assisting.

Monday, May 15

- 9:30 a. m. National Board Meeting, Regency Room, Hotel Chase.
- 1:30 p. m. to 4:45 p. m. Visits to private gardens of St. Louis County and tea. (Bus fare 75 cents.)

Tuesday, May 16

- 7:45 a. m. Southern Breakfast, Hotel Chase.
- 9:00 a. m. General session, Empire Room, Hotel Chase.
- 12:30 p. m. Luncheon at St. Louis Woman's Club in honor of Past Presidents of the W. A. A. M. A. (\$1.25.)
- 1:45 p. m. Optional tours. (a) Park Area, (b) Arts tour. (\$1.00.)
- 4:00 p. m. Tea, St. Louis Medical Society Building. Hostesses, Woman's Club of St. Louis University School of Medicine.
- 8:00 p. m. Open Meeting of A. M. A., Municipal Auditorium. (Special buses, round trip 50 cents.)

Wednesday, May 17

- 9:00 a. m. Annual Meeting, Empire Room, Chase Hotel.
- 1:00 p. m. Annual Luncheon, Chase Club. Speaker, Dr. Rock Sleyster, President, A. M. A. (\$1.25.)
- 2:30 p. m. Exhibits and Music, Empire Room. Conferences.
- 7:00 p. m. Reception, Supper and Program. St. Louis Medical Society Building. Hostesses, Woman's Auxiliary of the St. Louis Medical Society to all visiting ladies. Motion pictures of U. S. Seal Fisheries and Fur Fashion Show.

Thursday, May 18

- 9:00 a. m. Executive Committee Meeting.
- 10:00 a. m. Board of Directors Meeting.

- 12:30 to 3:30 p. m. Mississippi Steamboat Trip for men and women. (\$1.00.) Usual light refreshments available at reasonable prices. (Transportation from Hotel Chase by special buses for those who buy tickets in advance, 50 cents. Shuttle buses from Third Street to boat connecting with regular transportation lines.)
- 7:00 p. m. Annual Bring-Your-Husband Dinner, Hotel Chase. (\$2.00.)
- 9:00 p. m. Annual A. M. A. President's Reception and Ball, Jefferson Hotel. (Special bus from Chase Hotel to Jefferson Hotel, 25 cents.)

Friday, May 19

Women's Medal Round of Golf and Blind Bogey. Trophies and prizes offered.

The committees on women's activities for the St. Louis Session of the American Medical Association held a general meeting for reports and conference at the St. Louis Medical Society Building on March 14. Mrs. Willard Bartlett presided. The chairmen of the twenty-two committees for the 17th annual session of the Woman's Auxiliary to the American Medical Association gave concise reports on the arrangements and entertainment for all visiting women and on several entertainments for both women and men. About 200 women attended. Mrs. Charles C. Tomlinson, President of the National Auxiliary, spoke briefly as did Dr. Robert E. Schlueter, General Chairman of the Committee on Arrangements for the American Medical Association St. Louis Session. Dr. Alphonse McMahon, President of the St. Louis Medical Society, spoke.

The regular monthly luncheon meeting of the St. Louis Auxiliary, scheduled as Health Day, immediately preceded the meeting of committees. Mrs. E. Horace Johnson, president, presided, the chairmen of the day being Mrs. A. E. Meisenbach and Mrs. Armand D. Fries. Mrs. Tomlinson discussed the program of the National Auxiliary. Dr. Curtis H. Lohr, Chairman of the Council of the Missouri State Medical Association and speaker for the day, talked on "Present Trends in Public Health." The large group of auxiliary women present pledged their assistance in passing on the facts presented.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

15th Annual Meeting, Hotel Snapp, Excelsior
Springs, April 10-12

Monday, April 10

- 7:30 p. m. to 9:00 p. m. Informal reception. Hostesses, Clay County Auxiliary and Officers.

Tuesday, April 11

- 8:30 a. m. Registration, Hotel Snapp.
- 10:00 a. m. Preconvention Board Meeting. Mrs. Herbert L. Mantz presiding.
- 12:30 p. m. Luncheon, Excelsior Springs Country Club. Guest speaker, Mrs. Tadeo Campuzano. (60 cents.)
- 3:30 p. m. to 5:00 p. m. Tea at Veterans' Hospital. (Transportation furnished by the Chamber of Commerce.)
- 6:30 p. m. Bring-Your-Husband Dinner. Elms Hotel. Mrs. Herbert L. Mantz presiding. Speaker, Dr. R. Emmet Kane, St. Louis.
- 9:00 p. m. President's Dance. Elms Hotel.

Wednesday, April 12

- 8:30 a. m. Registration, Hotel Snapp.
- 9:00 a. m. Annual Meeting. Mrs. Herbert L. Mantz presiding.

Invocation, Rev. Arthur A. Hedges, Excelsior Springs.

Welcome, Mrs. Y. D. Cravens and Miss Margaret K. Stewart, Excelsior Springs.

Response, Mrs. Charles Greenberg, St. Joseph. Business Session.

Memorial Service, Mrs. J. B. McCubbin, Fulton.

- 1:00 p. m. Birthday Luncheon. Mrs. Herbert L. Mantz, and Mrs. Paul F. Cole presiding. Hotel Snapp. (\$1.00.)

Invocation, Mrs. C. G. Leitch, Kansas City.

Anniversary Program.

Installation of Officers.

Honor Guests: Dr. B. W. Hays; Dr. James R.

McVay, Dr. Herbert L. Mantz.

- 3:00 p. m. Post Convention Board meeting. Mrs. Paul F. Cole presiding.

BOOK REVIEWS

HUMAN PATHOLOGY. A Textbook by Howard T. Karsner, M.D., Professor of Pathology, Western Reserve University, Cleveland, Ohio. With an introduction by Simon Flexner, M.D. Eighteen illustrations in color and 443 black and white. Fifth edition, revised. Philadelphia and London: J. B. Lippincott Company. 1938.

"A textbook is only an introduction to the essentials of a subject." Dr. Karsner's textbook on pathology gives the student that and more. The references given at the end of each chapter are for the most part in English and are sufficient for most investigations in the specialized fields. The subject matter covers the field of pathology completely and clearly.

Dr. Karsner has brought the book, now in its fifth edition, up to the most modern concepts of the subject. The limited number of illustrations are exact and well chosen. Illuminating is the newer subject matter on pneumoconiosis, the hemopoietic system and inflammation.

Emphasis appears to have been placed on general pathology which will continue to make the book an excellent textbook for the beginner while the references given at the end of each chapter will make the book valuable for the advanced student. S. D. K.

ANUS, RECTUM, SIGMOID, COLON. Diagnosis and Treatment. By Garry Ellicott Bacon, B.S., M.D., F.A.C.S., F.A.P.S., Assistant Professor of Proctology, Temple University School of Medicine; Assistant Professor of Proctology, Graduate School of Medicine, University of Pennsylvania, etc. Introduction by W. Wayne Babcock, A.M., M.D., LL.D., F.A.C.S. Foreword by J. P. Lockhart-Mummery, M.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.). 487 Illustrations in the text mostly original. By William Brown McNett. Philadelphia, Montreal, London: J. B. Lippincott Company. 1938.

This book with its excellent anatomical discussion as an introduction sets forth as complete an exposition of diseases in this area as has appeared. Apparently every possibility is considered and the discussion is well rounded without being voluminous.

The chapter on "Pruritis Ani" is particularly timely and up to date and the treatment is practical, specific and detailed. There is also an excellent chapter on "Malignancy" and the pathology and treatment of it are completely covered. The book is well illustrated with photographs and diagrams, and both amplify the text.

In the foreword by J. P. Lockhart-Mummery, he recommends the book to all proctologists. General and gastro-intestinal surgeons will find it equally useful. H. A. H.

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SHALL MEDICINE REMAIN INDEPENDENT?

ADDRESS OF THE PRESIDENT

B. W. HAYS, M.D.
JACKSON, MO.

The unsettled condition in which we find the people of Europe since the World War and the social and economic upheaval which has attended this catastrophe have wrought tremendous changes in all classes or groups of society.

As the medical profession is the object of our immediate attention, we are anxious to learn, if we may, what is going to be the final result of these changes in the field of medicine. Wherever the problem is presented for solution, the trend has been toward socialized medicine, compulsory health insurance or toward state medicine. So far none of these plans has been entirely satisfactory to the medical profession. An unhappy state of the medical guild is found in practically all of the European countries regardless of the form of government, wherever one of these new plans has been put into operation. The differences in the plans are more or less a matter of degree rather than essential principles. The final result is to slow down or cut off medical progress altogether.

The repercussions of the social and economic conditions in Europe have, through international relationship, furnished the Americas with the same disquieting problems. It is a well recognized principle in economics that whatever affects the welfare of the worker or producer in the matter of earnings and enforced idleness through shutdowns, strikes and other disruptions will have similar influences on all other groups of society, including the medical profession. Disturbances in the economic condition of the country have been fairly well indicated in the lowered financial returns to the medical profession ever since the beginning of the "depression." Our chief problem lies in trying to conform to these changed conditions without destroying those things which have been potent in making American medicine the foremost in the

world today. Among the things which cannot be sacrificed without irreparable loss to prestige and initiative of the profession are the following:

(1) Higher standards of medical education now in force in all Class A schools. This has come about within the profession itself.

(2) Ample provision for making the science of medicine the prime objective of the medical curriculum.

(3) Unlimited opportunity to pursue research study after completing the undergraduate studies. It is in this field that American medicine is rapidly becoming preeminent. Such discoveries as the use of liver feeding in pernicious anemia, the control of yellow fever, the use of glandular extracts in the control and management of the so-called deficiency diseases, insulin in the care and management of diabetes mellitus, and the discovery of diseases arising from parasites or infections found in such intermediate hosts as ticks, flies, fleas, mosquitoes and other forms of animal and insect life are accomplishments of American medicine.

Such work has been going on during the last fifty years without interference from the fettering hand of the politician or other forms of official meddling. Since the German medical profession was subjected to a system of compulsory health insurance and other forms of government control, it has lost the very things which hitherto had made German medicine preeminent; namely, the pursuit of medicine for its scientific interests and with perfect freedom of choice in such interests. What German medicine has gone through is only typical of what the other Continental countries have done to the profession of medicine.

We are now confronted with the same unhappy economic conditions which brought about the undesirable things with which the medical profession of European countries are now contending. How best to meet this situation is the problem which is most disturbing to American medicine. Our problem is rendered more difficult because our government is a democracy where free speech and freedom of action are tolerated to a degree unheard of under dictatorships and monarchies such as they have in European countries.

There are many methods offered from the various

states and many others are in process of formulation, but in each there seems to be something lacking.

The American Medical Association and the various state associations seem to feel that, of the plans thus far offered, none can be adopted without an irreparable loss to the initiative and prestige of medical practice as we have it today, and have had it throughout the past. In defense of the present individualistic plan, it may be stated that no country, having adopted any of the proposed innovations, can show a lower death rate, a better system of preventive medicine, a longer average of life, a more generous distribution of medical service to the indigent poor than the medical profession of the United States. On the basis of progress made in the field of discovery and the satisfactory distribution of medical service to the poor (though this is denied by certain groups) it is believed that the old individualistic system such as we have always had in this country should be maintained. So long as we have leaders in the American Medical Association and in our medical schools, such as we now have, there need be no fear that the system will break down and become unequal to its tasks.

The distribution of medical care to the indigent poor is a charity which should become the burden of all the people under some provision of the Social Security Act, on a nonprofit basis, if need be, but paid for out of taxes or appropriations from the state and national government.

The doctor pays his portion of the taxes needed to carry on the functions of government in the same manner and in the same proportion as any other citizen. Then why should he be called on to make sacrifices in time and money and in disruption of a system of caring for the sick which has been with us ever since the foundation of the government? So long as our government continues to function as a democracy; so long as our present methods of caring for the sick can show a better average of results than has been obtained in other countries, then these innovations which we hear so much about may well be left to the other countries.

THE MISSOURI STATE MEDICAL ASSOCIATION: PAST, PRESENT AND FUTURE

ADDRESS OF THE PRESIDENT-ELECT

JAMES R. McVAY, M.D.
KANSAS CITY, MO.

May I take this opportunity of again greeting the membership of the Missouri State Medical Association in the spirit of confirmed belief that the enthusiasm, interest and intelligent activity of our members will guide us to an understanding and democratic action for the betterment of the scientific

side of medicine, the health of the public and the interests of the medical profession?

In these days of kaleidoscopic changes in the social and political picture of the peoples of the world, it seems fitting that we stop and take an invoice of the position of the medical profession in the United States and more particularly in the Missouri State Medical Association.

THE PAST

I believe that the majority of us can agree that progress is never made by acclamation or unanimous consent but only as a result of the determined effort of enlightened individuals encouraged by the righteousness of their purpose. Several years ago a number of men in this Association became convinced that the State Association was not rendering the best possible service to the profession and to the community. They were convinced that the lofty purposes of this organization expressed in Article II of the Constitution, namely: "To promote the science and art of medicine, to protect the public health and to better the medical profession," were not being carried out in a manner befitting the dignity of an organization whose honorable history has been linked with the political and economic program of this state for over one hundred years.

Probably the most important step taken was the changing from a large and unwieldy Council of many members to a closely compact body of ten members whose familiarity with the problems of medical organization and its purposes has enabled them to more accurately guide the Association to the better fulfillment of the purposes for which it was established. With no desire to reflect upon the honor or works of our former Council, I believe you will agree with me that the present organization has not been equalled for its accomplishments in the relatively short time that it has been functioning. To every member of the present Council must go the credit for this progress and most particularly to the inspiring and far-sighted leadership of the Chairman of the Council, Dr. Curtis H. Lohr.

THE PRESENT

In order to promote the science and art of medicine, the Program Committee this year has, I believe, given us one of the best and most instructive programs ever offered at any of our Annual Meetings.

Toward this same purpose a committee of the Council is working upon a plan to make *THE JOURNAL* a real force in scientific medical journalism, a magazine in which the leading medical minds of our state will be glad to publish their best communications. The foundation and character of *THE JOURNAL* shall ever remain a monument to the editorial genius and indefatigable energy of Dr. E. J. Goodwin. Because of his health, he felt compelled to offer his resignation as Secretary-Editor last summer and the Council was proud to honor him and the Missouri State Medical Association by making him Secretary-Editor Emeritus for life.

With the idea of promoting the science and art of medicine and bettering the medical profession, the Postgraduate Committee, through its Chairman, Dr. C. H. Neilson, has coordinated the activities of the various standing committees so that there will be less overlapping and better service to the members of the various component societies.

The Council, in its purpose to protect the public health, has granted to the Secretary of the State Board of Health the use of pages in *THE JOURNAL*. Thus, he has been given an opportunity to coordinate his work each month with the entire membership of the Association.

And now let us take a look at our legislative position. For years other states have been enacting progressive medical legislation and resisting most effectively cultist inroads upon the practice of medicine.

President Hays appointed to the Public Policy Committee Dr. Morris B. Simpson, Kansas City; Dr. R. Emmet Kane, St. Louis, and Dr. James Stewart, Jefferson City. After conferences with the Council and the Committee on the Study of the Medical Practice Act, there was introduced into the legislature the Basic Science Law (Senate Bill No. 29), the Annual Registration Law (House Bill No. 500), and the Injunction Law (House Bill No. 548).

Thus, the first step toward the enactment of progressive legislation was taken. Their introduction alone has served the purpose of awakening the medical profession to its needs. It has also acquainted the legislators with their duty of making adequate provisions for the proper guarding of the public health. It has further brought the question to the attention of the great and increasingly interested public whose intelligent influence we must secure if our goal is to be reached. Since this, the 60th General Assembly, is a revision session of the legislature there will be particular difficulty in bringing these bills to a passage but the informed assistance of the membership at this time will make more certain their passage at a future session if we should fail at this session. I feel that the Association should know and applaud the work of the members of this Association who, as members of the legislature, are fighting the battles of organized medicine.

There are other desirable changes in our medical practice laws which should be given early and interested consideration. It is hoped that the next opportunity will be met with a coordinated program supported actively by every member of this Association.

In the field of national medical legislation there has been introduced into the Congress of the United States by Senator Wagner of New York, on recommendation of the Interdepartmental Committee to Coordinate Health and Welfare Activities, (Senate Bill No. 1620), and if enacted this bill is to be called the "National Health Act of 1939." This bill provides for federal grants to the states for public health work, maternal and child health services, services to crippled children, grants for hospitals

and health centers, grants to states for medical care and grants to states for temporary disability compensation. The bill after its introduction was referred to the Senate Committee on Education and Labor. As yet no public hearings on the bill have been announced. I would urge all of you, however, to familiarize yourselves with its provisions. There are two definite objections: First, it places control under the Social Security Board and gives no recognition to the medical profession; second, its provisions for medical care are vague and would certainly leave the way open for the establishment of a system of compulsory health insurance, federally controlled through the Social Security Board. I believe you must agree with me that there must be a vigorous and militant opposition by the individual membership as well as by the organization if we desire to protect our individual freedom and the future welfare and the health of the people. Mr. Dwight Anderson, Director of Public Relations of the Medical Society of the State of New York, in a paper on "Write Your Congressman Immediately," stresses the great value every congressman gives to brief, clear, concise and intelligent letters from medical men. It will serve us well to follow earnestly his suggestions.

I feel that for an organization of 3300 members, occupying as we do the position as leaders in our communities, we have been woefully impotent in our legislative programs. This has been due partly to lack of coordination and partly to indifference of the individual membership. The support given by the individual members in the last few months has convinced me that you are willing and anxious and only ask a courageous leadership. This, your officers and committees will strive to their utmost to give.

THE FUTURE

I hope that all of you will take advantage of the opportunity of attending the meetings of the House of Delegates and thereby acquaint yourselves with the problems of medical service which your organization will be dealing with in the immediate future. It is only by free discussion, uncolored by rancor or hatred, in an intelligent, democratic meeting that our future can be safely mapped. Once charted it should be the course for all to follow. As your presiding officer, I shall ask your support to help make my year of service a period of intelligent cooperation and coordination and not dictation.

814 Medical Arts Building.

Metabolism of the brain is diminished when insulin or metrazol is used as convulsion treatment for schizophrenia. Harold E. Himwich, M.D., and Joseph F. Fazekas, Albany, N. Y., Karl M. Bowman, M.D., and Joseph Wortis, M.D., New York, state in *The Journal of the American Medical Association* for April 22.

Schizophrenia is a form of mental disorder characterized by cleavage of mental functions. Metabolism may be defined as the physical and chemical processes by which living organized substance is produced and maintained.

SYMPOSIUM ON MENTAL HEALTH

THE CONSTITUTIONAL FACTOR IN MENTAL DISORDER

EDWARD T. GIBSON, M.D.

KANSAS CITY, MO.

The modern view of mental disorders considers them as types of reaction. The very word reaction implies two factors which operate in every case; the first is the environmental situation to which the personality reacts and the second is the personality as it exists at the particular time.

The personality itself is not static but is subject to continuous modification by the impact of external circumstances. The process of interaction begins indefinitely far back in the history of the individual, before birth and perhaps even before the individual is formed by the fusion of sperm and ovum.

In the study of inheritance in mental disorders it is difficult by any analytical method to determine from the symptoms of a particular case, the original peculiarity on which the environmental factors have reacted to produce the finished result, or even to prove that such a peculiarity in constitution exists. The general belief in an inheritable factor has come from general impressions, from observations of isolated families in which cases of mental disorder have occurred with more than probable frequency and, finally, from controlled statistical studies of large groups.

Heredity can be studied in three ways: (1) by collection and analysis of statistics of large groups of cases including ascendants and descendants; (2) by observing the frequency of mental disorders in identical twins as compared with dissimilar twins and ordinary siblings, and (3) by deduction from the principles of genetics.

STATISTICAL STUDIES

There are many difficulties in the collection and interpretation of the statistics on mental disorders. The attitude of psychiatrists toward the various types of disorders has varied from time to time. Under the influence of Emil Kraepelin the various forms were considered much more definite and exclusive than is the case at present. While most cases of schizophrenia and cyclothymia conform with the accepted characteristics of those types, there are many instances in which the distinction between them is not clear and occasionally an apparently typical case of cyclothymia will become transformed into a schizophrenic picture. The nature of many pathological depressions is not clear, and maniacal states appear in organic brain diseases and in physical illnesses of exogenous and endogenous origin.

Statistics are likely to be influenced by the prevalent beliefs existing at the time they were collected,

and for this reason studies made at different times may not be comparable. To a certain degree statistical studies may supply a test of how closely the types agree with the facts of nature. If hypothetical groups, when subjected to statistical analysis, show significant differences in results, there must have been some validity in the hypothesis.

It is possible also that the heredity factor may not be specific for each type or even for mental disorders alone but may become manifest in different ways in different individuals.

FAMILY INVOLVEMENTS IN PSYCHOTIC AND
NONPSYCHOTIC CASES

The best studies on this point are those of Koller¹ and Diem.²

Koller reviewed the family histories of 370 psychotic individuals and compared them with histories of a normal control group of the same number. She listed the occurrences of psychosis, nervous disease, apoplexy, alcoholism, senile dementia, abnormal character and suicide in the families of both groups. A noteworthy finding of the study was that 59 per cent of the normal group had family histories of these factors, of the psychotic group 76.8 per cent had such family histories. In the families of psychotic patients the most common factors were psychoses and abnormal character.

Diem in a study of the families of 1193 normal persons found that only one third were free from abnormalities. The families of 2515 insane patients were free from abnormalities in about one fifth of the cases. In other words, family abnormalities were present in the families of 77 per cent of the insane, and in 66.9 per cent of the normal individuals.

If psychoses alone are considered, it was found that they occurred three times as often in the families of the insane. There was a difference also in the degree of relationship of afflicted individuals in the family. In the insane, abnormality occurs in the parents in from 50 to 70 per cent, while in the normal group only 33 per cent was direct from the parents. Diem concludes that "the working of a regenerating influence is incontestable, but the effect of the direct heredity is unmistakable."

Manic-depressive Psychosis.—It is recognized that maniacal and depressive attacks change imperceptibly into subclinical oscillations of mood which are characteristic of many people not classed as having psychoses. Since these minor forms may easily be overlooked in genealogical studies, statistics founded upon such studies probably understate the case for heredity.

The conclusions of Kraepelin and of Suenner³ are that the cases were familial in from 80 to 85 per cent. The heredity factor is highest in this group. Suenner's statistics show that psychoses occurred in the antecedents in about 44 per cent, nervous diseases in 15.1 per cent, apoplexy in 11.8 per cent, alcoholism in 9.8 per cent, abnormal character in 11.5 per cent and suicide in 4.8 per cent.

Schizophrenia.—Kraepelin found that in 1054 cases, mental anomalies were present in 53.8 per cent of the families. The heredity was direct in 33.7 per cent. In these families there were various psychoses and psychopathic conditions as well as cases of dementia praecox. The occurrence of minor schizoid states and schizoid personalities probably invalidate most statistical groups to an indefinite degree.

Epilepsy.—Abnormalities were found in the families of 81.26 per cent of 352 cases of "true" epilepsy studied by Snell of Munich (1921). Nervous diseases and alcoholism were the most numerous conditions found in these families. Abnormalities occurred in the direct line in about 60 per cent.

Davenport states that where both parents are epileptic all the descendants are epileptic, but Hoffman in studies in Munich found that epilepsy is rare among descendants of epileptic parents.⁴

One of the most complete studies is that of Calvert Stein⁵ who compared the family histories of one thousand epileptics with a nonepileptic control group. He found seizures in 2.9 per cent of the parents, in 4.1 per cent of the siblings and in 2.2 per cent of the offspring of epileptic persons. Corresponding figures for the nonepileptic control group are .4, .8 and .9 per cent.

Feeble-mindedness.—Statistics on feeble-mindedness and epilepsy are subject to error by the inclusion of cases with organic brain lesions. Goddard (1914) in a study of the families of three hundred feeble-minded found one hundred and sixty-four other cases among these families.

RESULTS OF GENEALOGICAL STUDIES

The practical value of genealogical studies to the physician depends largely upon how well they enable him to advise as to marriage of epileptics and to allay the fears of other members of the families of the psychotic patient. No definite answer can be given in a particular case unless one is dealing with one of the rare families in which the psychoses or epilepsy has appeared in two or more generations. Schizophrenia, cyclothymia and epilepsy are so frequent that the occasional occurrence of two cases in the same family might be due to chance.

PSYCHOSES IN TWINS

The theoretical importance of the study of psychoses in identical and dissimilar twins is great. The conditions are much more simple so that the presence of factors present in the germ plasm which are sufficient to produce psychoses can be tested with few possible fallacies as compared with gen-

ealogical studies. The principal authority on this subject is Rosanoff who with his associates has reviewed the literature, collected many more cases than had been reported previously and analyzed the material with great care.

Feeble-mindedness.—Rosanoff collected ninety-five pairs of twins in which one or both were feeble-minded. In the thirty-five identical twins, both were affected in thirty-three pairs, and in two pairs one was feeble-minded and the other of normal intelligence. In sixty pairs of dissimilar twins, both were affected in thirty-two cases and only one in twenty-eight cases.

Of the dissimilar or dizygotic twins thirty-three pairs were of the same sex and twenty-seven pairs were of the opposite sex. In the latter group both were feeble-minded in eleven cases and one only in sixteen cases. Of these sixteen, the male was affected in eleven cases and the female in five cases.

Taking the whole group of one hundred and ninety individuals, one hundred and sixty were feeble-minded and thirty were normal. There were ninety-one males and sixty-nine females in the feeble-minded group, but in the normal groups ten were males and twenty females.

From these figures the existence of a heredity basis for feeble-mindedness seems clear, since a purely exogenous factor would be likely to affect identical and dissimilar twins equally. The results also show that the recognized tendency for males to be affected more than females has a sex-linked hereditary basis.

Epilepsy.—Of the one hundred and seven instances in which epilepsy occurred in one or both twins, twenty-three were identical, thirty-nine dissimilar and of the same sex, and forty-five dizygotic but of opposite sex. Among the twenty-three monozygotic twins, both were affected in fourteen instances. Among the eighty-four dizygotic twins both were affected in twenty pairs.

Although patients with epilepsies form a heterogeneous group, the figures indicate that some cases have a hereditary factor. This factor was inadequate to produce epilepsy in the nine cases of monozygotic twins in which only one was affected. An adequate hereditary factor was absent in the 24 per cent of dizygotic twins in which both were epileptic. The hereditary factor is obviously much overrated in popular belief.

Schizophrenia.—Schizophrenia occurred in one or both of one hundred and forty-two pairs of twins. Of forty-one identical pairs, both were affected in twenty-eight instances and one of the pair in thirteen instances; of the one hundred and one dissimilar twins, both were affected in fifteen instances and only one in eighty-six instances.

Rosanoff concludes that hereditary factors play a part in schizophrenia but are often in themselves inadequate to produce psychosis. Because of the dissimilarity of the psychoses in twins, he concludes that the hereditary factors are not highly specific.

Manic-depressive Psychosis.—Rosanoff's material

included ninety pairs of twins with manic-depressive syndromes, of which twenty-three were monozygotic and sixty-seven dizygotic. In the identical group both twins were affected in sixteen instances and one only was affected in seven instances. In the dizygotic group, both were affected in eleven instances and only one in forty-six instances. The great preponderance of females is noticeable.

The conclusions are that heredity plays an important part in the etiology of the manic-depressive psychoses but is often inadequate to produce clinical manifestations. It is equally clear that hereditary factors are not always present. The female sex is especially susceptible to psychoses of this type.

GENETICS

The advancement in knowledge of genetics and the mechanics of development has shown that heredity is a much more complex matter than the early conceptions indicated. Most of the studies have been made upon simple forms of animals and have concerned relatively simple physical characteristics.

The old conception that germ plasm was the organism in miniature with a point-to-point correspondence of genes with the developed body is no longer tenable. The genes seem rather to indicate

general tendencies and to govern proportions and time relations of developing areas rather than specific traits. The influence of the nongerminal tissue and the environment in general is of the greatest importance in development of specific traits.

It does not seem possible at the present time even to guess at the method by which the hereditary tendency to certain psychoses is carried forward from one generation to another.

CONCLUSION

Genealogical studies and observation of twins show that in some instances of schizophrenia, manic-depressive psychosis, epilepsy and feeble-mindedness a constitutional and presumably germinal predisposition exists. The probability of any particular individual developing a psychosis or epilepsy on a hereditary basis is negligible. The mechanism of inheritance of these conditions is unknown.

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INSULIN AND METRAZOL SHOCK THERAPY

A REVIEW OF TWO YEARS' WORK AT THE FARMINGTON STATE HOSPITAL

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AND

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Massive dose insulin therapy as introduced by Manfred Sakel in the treatment of schizophrenia, with necessary modifications, has been extensively employed at the Farmington State Hospital during the last two years. In conjunction with therapy, extensive research in the body chemistry and laboratory studies have been made enabling us to give better care and to meet the complications as they arise. Our results have been gratifying. Complications have been greatly reduced and we feel that this type of therapy will eventually reduce the total population of state hospitals for, according to Noyes, schizophrenic patients comprise 60 per cent of the population in all state hospitals.

Metrazol shock therapy as introduced by Meduna has also been used extensively with fair results as can be seen from the tables, but in the last year a combination of the two types of therapy, insulin and metrazol, has greatly increased the recovery rate.

The results of treatment of 416 patients are presented. Both acute and chronic cases, as noted, are included in this number; also a number of cases

presenting other types of psychoses. The recovery rate in acute cases is very high while an additional percentage shows definite improvement. A full remission was obtained even in some chronic cases with an additional large number definitely improved.

Because the problem of mental illness confronts every practitioner, a review of the results of this method of treatment is brought to the attention of the family physician and internist. It is the family physician who is the first to be called and his recommendation for treatment before the disease becomes chronic will, we hope, permit many cases of dementia praecox to be restored to normal.

INSULIN FAILURES FOLLOWED LATER BY METRAZOL

Five acute cases were treated with the following results: Under insulin one had complete remission but relapsed; under metrazol had a good remission. Two had good remissions under insulin but relapsed; under metrazol one had good remission and the other showed no change. Two had social remissions under insulin but relapsed; under metrazol

Table 1. *Insulin*

	Total Paroles Returns		
Schizophrenia, Acute Cases (Total 94)			
Complete Remissions	53	51	3
Good Remissions	11	11	3
Social Remissions	9	8	1
Mental Improvement	15	5	4
No Change	3	0	0
Deaths	3	(1 incidental, 2 primary—hyperinsulinism)	
Schizophrenia, Chronic Cases (Total 115)			
Complete Remissions	11	11	4
Good Remissions	6	6	2
Social Remissions	21	20	3
Mental Improvement (rapid relapse of 32)	50	4	3
No Change	17	0	0
Deaths	10	(4 incidental and 6 primary)	
Nonschizophrenic Cases (Epileptic) (Total 7)			
Mental Improvement (rapid relapse 3)	7	1	1
Mental Defectives With Psychoses (Total 7)			
Social Remission	1	(to be paroled)	
Mental Improvement	6	(rapid relapse 2)	
Traumatic Psychoses (Total 2)			
Complete Remission	1	0	0
Mental Improvement	1	(rapid relapse)	
Psychoses With Pellagra (Total 1)			
Mental Improvement		(Incidental death)	
Psychoneurosis (Total 2)			
Social Remission	1	1	0
Mental Improvement	1	(rapid relapse)	
Manic (2 Manic and 2 Depressive) Cases (Total 4)			
Rapid Recovery (Manic)	2	(but one had received metrazol prior to entry)	
No Change But Later Recovered (Depressive)	1	0	0
Mentally Improved (Depressive)	1	3	0

Table 2. *Metrazol*

	Total Paroles Returns		
Acute Cases (Total 47)			
Complete Remissions	25	25	1
Good Remissions	4	4	0
Social Remissions	4	4	0
Mental Improvement	4	0	0
No Change	7	1	0
Deaths	0		
Chronic Cases (Total 84)			
Complete Remissions	3	3	0
Good Remissions	2	2	1
Social Remissions	12	9	2
Mental Improvement (rapid relapse 23)	43	1	1
No Change	34	0	0
Deaths	0		
Arteriosclerosis Cases (Total 5)			
Mental Improvement	3	2	0
No Change	2	0	0

one showed mental improvement and one showed no change.

Thirteen chronic cases showed the following results: Under insulin one showed good remission but following metrazol showed no improvement

Table 3. *Metrazol Cases Without Any Additional Treatment*

	Total Paroles Returns		
Chronic Cases (Total 34)			
Complete Remission	1	1	0
Social Remission	5	4	0
Mental Improvement (rapid relapse 15)	19	0	0
No Change	9	0	0
Deaths	0		
Acute Cases (Total 2)			
Complete Remission	2	2	0

Table 4. *Mixed Treatment**

	Total Paroles Returns		
Acute Cases (Total 4)			
Good Remission	2		
Social Remission	2		
Chronic Cases (Total 8)			
Complete Remission	1	0	0
Good Remission	2	0	0
Social Remission	3	0	0
Mental Improvement	2	0	0

*Insulin with metrazol added when good shocks were produced. Results incomplete and still under treatment.

and finally died incidentally. One showed social remission under insulin but relapsed and under metrazol about the same degree of improvement was obtained and the patient is now paroled. Ten showed mental improvement under insulin but relapsed and did not show any change under metrazol. One patient showed no change under insulin nor later under metrazol.

CASES TREATED WITH METRAZOL FOLLOWED IMMEDIATELY WITH INSULIN

Eleven acute cases were treated. Under metrazol six showed improvement, five showed no change. Under insulin seven had complete remissions, most of these being paroled. Two had good remissions, both being paroled, and one showed social remission and another showed no change.

Two chronic cases treated by metrazol showed no change. On insulin one had social remission and one good remission. Both were paroled.

CONCLUSION

Shock treatment is a definite advance in the treatment of dementia praecox. The particular type of shock therapy indicated may be insulin, metrazol or a combination of the two. Complications are becoming much less frequent and more easily controlled through increased knowledge and added experience.

State Hospital No. 4.

THE ADVANCEMENT OF METHODS OF CARE OF THE MENTALLY ILL

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Until the beginning of the present century our mental hospitals functioned only in a custodial capacity. The sufferer was "put away" where his peculiar views and behavior would not disturb the peace of mind of the community. What happened to the individual after the doors of the asylum

closed upon him was seemingly a matter of public indifference. Because of the peculiar nature of his malady, state care became the accepted method of dealing with the problem. Thus was added to the onus of a mental sickness, which in times gone by was regarded as reflecting upon the entire family,

the humiliation of charity, a grudging charity that formulated a regime that placed the care of these unfortunates on a parity with that of workhouse and almshouse inmates.

The public attitude has undergone little change as today, I am told, nearly twice as much per capita is spent on the maintenance of our antisocial group that requires only custodial care as upon the mentally sick who require better food, skilled nursing and medical care.

At the dawn of the present century a slight variation in our attitude toward the mentally ill was initiated. We learned to differentiate mental illness from mental defect, and from this point various classifications of mental disorders based upon symptoms and behavior were undertaken although the cause of these aberrations remained obscure. Our asylums were rechristened hospitals and although poorly endowed in this capacity became for a time diagnostic centers with the principal expenditure of effort directed to grouping and subgrouping these patients into more or less hazy classifications.

Gradually medical science has revealed the cause of many of these mental disorders and has pointed out the way to an effective method of treatment but there remain some types that are treated empirically, the exact etiology being still a matter of doubt. It is encouraging that we have passed through the custodial and the diagnostic eras to the treatment era, where research really begins, with every hope that in a few years at most the great mystery of the cause of mental illness in many of its phases will be solved and more effective methods of treatment developed.

Throughout the Middle West the public has little appreciation of the essential qualifications of the institutional psychiatrist as reflected in the meager inducement offered. He must not only be competent to minister skillfully to the physical illnesses of his patients but, in order to minister to their mental maladies, he must have a comprehensive knowledge of the social sciences. This is necessary that a rationale of treatment based upon the psychobiological principles best adapted to the needs of the mental morbidities exhibited may be developed.

It has been the policy throughout the Middle West to establish salary schedules so low as to be entirely unattractive to competent men seeking experience in the specialty of mental disease with the result that there are but three groups who are tempted to enter the field: (1) the young man, recently graduated, who is seeking the opportunity to establish himself in private practice and has not the means or location immediately at hand or who is anxious to discharge an obligation incurred in getting through college and hopes that a year or two of institutional work will accomplish this purpose, enters the work without any intention of making psychiatry a career and abandons the security and meager salary paid at the first opportunity; (2) the doctor of advanced years, who, because of

misfortune, hard times, personality handicap or the intrusion of a younger or more aggressive competitor chooses the cloistered security of institutional work to escape the arduous competitive struggle private work entails, without previous knowledge or interest in the field of psychiatry; (3) the man who is genuinely interested in psychiatry as a specialty and enters the service, but because of the poor opportunity for advancement and the inadequate salary paid soon gravitates to other states where the field is broader and compensation more adequate.

A constantly shifting medical personnel is not conducive to progress. With far too limited staffs and other handicaps as mentioned, with salaries fixed by legislative enactment without knowledge of the needs of these unfortunates or the value of the service demanded and with the frequent intrusion of political considerations to which other qualifications are sometimes subordinated, the progress of psychiatry is definitely retarded.

The field of psychiatry, although alluring from a scientific viewpoint, is insufficiently remunerative to retain permanently a high type of professional institutional service in Missouri.

This, by no means, implies that we do not have some excellent and thoroughly competent men in institutional service but these represent the few who are willing to sacrifice their personal and financial interests to further the cause of research and treatment of the mentally afflicted. To these men the state owes a debt of gratitude as public servants who are unselfishly devoting their lives to solving the problems of these obscure disorders.

Methods of distributing knowledge have advanced and multiplied, technic in the art of imparting knowledge to others has been perfected and refined. Today we seem to lack only the important realization of the disparity existing between the amount of abstract knowledge acquired and education in the application of this knowledge to the problems of adjustment to the daily stresses of existence and the art of effective living.

Much time, effort and money has been expended in the prolongation of human life and progress in providing an ideal milieu for our physical existence has been steady. Throughout this period of unprecedented progress and achievement the dichotomy of our mental and physical entities seems to have been a carefully fostered concept. The mind that enriches the body, that activates its every physical response, that formulates and directs its every function has been singularly neglected as being either unrelated or too complex or too far removed from the obvious and objective.

Thus throughout the renaissance of medical evolution the physical was stressed and the mental largely ignored and thus the concept of what we term psychiatry had its birth. In the beginning those interested in mental problems were for the most part the directing heads of asylums or medical men functioning in the capacity of assistants in

such work. Later we had the alienist whose sphere of activity was largely that of a medico-legal expert and finally as we became possessed of some modest truths in regard to human behavior and its motivation with a better understanding of individual reaction to social, economic and environmental stresses, a field was opened up that, because it had appeared hopeless or unattractive to those engaged in the practice of physical medicine or its numerous specializations, was long neglected or inadequately tilled.

Our health is our most precious possession and yet we give it least consideration. Without it there can be no happiness, no enjoyment of life, no worthy accomplishment, yet we jeopardize it daily and hourly by numerous transgressions against its natural laws. We become intemperate in eating, in drinking, in our work. We frequently fail to take necessary exercise. We sleep in poorly ventilated rooms, develop irregular habits, get insufficient sleep, drive ourselves to the breaking point in our social and economic struggles, expose ourselves needlessly to conditions that we recognize as deleterious to health and when we finally break down and become ill, when nature finally rebels against the abuses heaped upon her, we wonder, "Why?"

Sometimes our physical, sometimes our mental resources, succumb to the strain of meeting and adjusting ourselves to rapidly changing social and economic conditions. Sometimes we are assailed by specific ailments of contagious or infectious type against which we have failed to establish immunity by the many methods now proven effective. Perhaps, if we are elderly, some part of the physical machine begins to fail and functions improperly and invalidism or more serious consequences result.

More frequently the mental and emotional factors concerned with our social, economic and environmental adjustments fail to meet the demands imposed on them, resulting in conditions that may be purely mental in character, expressed by feelings of anxiety, apprehension, worry, blues, feelings of futility. Inadequacy or the situational problems may be so unbearable that the sufferer seeks to remove himself from reality and develops a serious mental illness. His inability to meet the daily situations of his environment, to make the proper compromises between his ideals and the stern realities of life, forces him to take refuge in a neuroses that may be manifested by a projection of his mental pain and discomfort that are in themselves intangible to complaints of physical distress or discomfort for which no adequate pathology may be found. Thus there is developed what foreign physicians have facetiously termed, "The Great American Disease," neurasthenia, or its more invaliding and distressing gradations, the hysterias, neuroses and psychoneuroses whose contribution to the ranks of invalidism is far greater than any single morbid entity with which the physician is called upon to do battle.

It is estimated, and I think the estimate conservative, that two out of every five adult persons visiting the office of a physician and one out of every four adults visited by him in their homes is suffering from a mental rather than a physical morbidity. They present a protean and ever varying symptomatology upon which they dwell with great circumstantiality.

Notwithstanding the complete absence of physical pathological conditions their suffering is poignant and (to them) real and invaliding and their search for relief takes them from doctor to doctor or to the surgeon with disappointing results that may eventually end in a fixed and permanent invalidism; or they may gravitate to the cultist who, because he knows more about the psychology of the nervous sufferer than of therapeutic measures of relief, frequently is able through the exhibition of sympathy and interest, positive and dogmatic assurance of relief or cure, to relieve symptoms where more erudite and better trained agencies have failed through an inability to appreciate and deal with the mental and emotional factors that underlie the physical complaints presented.

I have chosen to discuss this subject because so little emphasis commonly is placed upon mental and emotional factors as they relate to health or as they simulate, modify or accentuate our physical morbidities. We may purge the body of impurities, of toxic or deleterious substances and thereby restore health and proper physical function but it is impossible through the administration of a pill or potion to induce a mental catharsis that will free the mind of morbid or unwholesome thoughts or convictions. The sooner the common error of considering the mind as separate and apart from our physical being is corrected the sooner will we arrive at a more satisfactory evaluation of the whole individual and be enabled to interpret with greater accuracy the fundamental psychogenetic factors that may intensify an existing physical morbidity or simulate such a morbidity where none exists.

Sixty-five years ago Disraeli declared in one of his famous speeches, "The first consideration of any government must be the health of the people." Health must be interpreted in a wide sense, health of the mind as well as the body.

Health service has become a major consideration of the government but strangely enough in provision for safeguarding health the physical health only of our people has been given consideration. Cromwell in an address before the British Parliament in 1658 said, "The mind is the man . . . if not I would fain see what difference there is between him and a beast."

The people of a commonwealth are certainly as important as the cattle and swine that form a large portion of the wealth of the state and nation. Our state has spent enormous sums for the study and eradication of diseases that threaten our prosperity in the field of animal husbandry. Our schools and universities have been liberally endowed that edu-

cation might make its contribution to the enjoyment of a more abundant life. Our physical health has been safeguarded by wise legislation and the establishment of agencies to enforce public sanitation, by quarantine and by prophylactic immunization but the mental health of the people, without which there can be no capacity for enjoyment and no contribution to our social or economic assets, has been shamefully neglected. The result has been the progressive increase in dependency, juvenile delinquency, crime, feeble-mindedness and insanity as reflected in the state's increasing economic burden.

The psychiatrist, because his work demands a closer contact with the social than with the basic sciences, must perforce be something of a psycholo-

gist, an educator and sociologist as well as a physician.

The understanding of mental processes must be integrated with and form a part of a progressive social order and we must look to society for support of measures necessary to permit a more general knowledge of the propulsive mechanisms of the individual member in order that we may be able to accomplish, by such knowledge and the establishment of effective agencies for correction, a success based on knowledge and understanding of human motivation rather than a judgment of conduct deviations as these relate to socially acceptable forms and conventional patterns.

State Hospital.

THE PLACE OF PSYCHIATRY IN MEDICAL EDUCATION

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"The teaching of psychiatry is no longer limited to a few hours in the clinical years of medicine. Therapeutic necessity, advances in medical education and the development of broader attitudes on the part of laymen, practitioners and teachers have fostered its growth to a point where it is recognized as being one of the basic courses in the medical school. There was a time when it was considered strictly a medical specialty. It is, of course, true that one may advance himself to the point where he has specialized knowledge and ability in this field of work, and put special emphasis on it in his practice; however, psychiatry in general is not a specialty and is not taught as such to undergraduate students. Essentially it deals with the range and variation of personality functions, and in the final analysis is obligatory for a broad knowledge of medicine."

These remarks by Watters¹ clearly set forth the present-day conception of the place of psychiatry in the curricula of medical schools, and the practical objectives are outlined in the following remarks by the same author: "Any student leaving the medical school without the ability to appreciate and evaluate such fundamental principles of human life and nature is not adequately equipped to practice medicine in present-day society. To a large measure the neglect of these vital considerations in former times is responsible for the loss of faith in medicine by many laymen and their resorting to the thriving cults and quacks who are enriching themselves mainly because they possess a knowledge of 'psychological medicine' and the ways of human nature."

It is true that these remarks are made by a psychiatrist and represent a psychiatrist's viewpoint. However, the reader should not conclude that this viewpoint is held by psychiatrists only. The curricula of the medical schools are arranged, of course, by committees of the faculties on which are repre-

sentatives of most of the departments. The new interest in and the increased realization of the importance of psychiatry to students are reflected by the changes in the curricula of medical schools in the last ten years. Table 1 shows the increase in the number of hours devoted to all forms of psychiatry in the current school year in ten medical schools picked at random as compared to the number of hours in the same schools ten years ago.

Table 1. *Hours Devoted to Psychiatry*

School	Total Hours 1928-29	Total Hours 1938-39
1	48	138
2	46	192
3	100	200
4	66	179
5	84	124
6	33	128
7	32	88
8	72	96
9	*	166
10	102	118

*Comment in reply to letter of inquiry: "There is no comparison at all between the work being done now and ten years ago, or even before 1936, as far as amount of time, etc., is concerned."

The comments by two of the deans who answered the letters of inquiry sent out to obtain this data are indeed significant. One said: "You will notice our course has been changed in a striking way since then and that the faculty in psychiatry has been greatly enlarged and the work devised so that it now covers all phases of psychiatry. . . . Beyond a shadow of doubt the course should have been enlarged and strengthened ten years before it finally came to pass." The other dean said: "In the announcements of that year . . . you would find psychiatry included only as a part of general medicine. No professor of psychiatry had been appointed. . . . In the announcements of 1938-39 you will note six courses in psychiatry, one professor, three assistant professors and four instructors. The amount of teaching in psychiatry cannot be definitely stated

in hours. The interest in this phase of medicine and the attention devoted to it is steadily increasing."

Ebaugh,² who directed an appraisal in 1931-32 of the teaching of psychiatry, found "that only fourteen of the sixty-eight schools visited were giving reasonably adequate instruction in psychiatry. . . . At the time we made the rounds of the medical schools there was a unanimity of opinion among the deans, professors of medicine, professors of pediatrics and the psychiatric teaching personnel concerning the practical importance of psychiatry in medical education which has paved the way for progressive change in the teaching of psychiatry as a fundamental phase in the basic general training. These changes are shown in . . . that during the current teaching year there is evidence that all but twenty of the sixty-eight schools visited have made noteworthy advances in the teaching of psychiatry."

It is necessary to define psychiatry as it is taught today. Many physicians consider psychiatry as a synonym for alienism, the determination of the presence or absence of insanity, the legal term signifying nonresponsibility; psychoanalysis, a very highly developed form of psychotherapy, a specialty within a specialty; custodianship, the care of the chronically mentally ill and irresponsible persons; or psychiatry as a medical specialty, diagnosing, treating and investigating the mentally ill. Psychiatry as defined for medical teaching probably has been best interpreted by Ebaugh,² who said: "Psychiatry should be looked upon as one of the fundamentals of the basic training of every physician and should not be taught as a specialty, but should be a major division of the general medical curriculum along with medicine, surgery, obstetrics, and pediatrics. . . . During the preclinical years it is most important that the student should be given insight into the normal functioning of the individual as a person. . . . Anyone will best understand it as the functioning of the individual, the person, the he, or she, not as a mere mind, but as a live entity with the flesh and bone of anatomy and physiology. . . . The person is a biological entity with a name and life history and inner continuity and actual record, an entity spread over a lifetime between conception and death and natural periods and phases and rhythms of actions and rest, wakefulness and sleep, phases of maximal fitness and states of repair. Likewise a preclinical foundation should consist of work in psychopathology which, like the rest of pathology, is fundamental in the basic medical training. . . . In such teaching, in terms of psychobiological principles involved in personality study, the various reaction sets based on the interplay of physical, psychogenic, toxic and organic forces, and economic and social features can be evaluated."

This aspect of psychiatry is related to the usual conception as pathology and minor surgery are related to neurosurgery, as pharmacology, physiology and physical diagnosis to cardiology, and as

fractures and dislocations to corrective orthopedic surgery.

The understanding of human behavior of an individual and of the individual's reaction to his environment is a vital part of the physician's armamentarium. This was left to chance in the early days of the modern medical school but was learned by bitter experience before the young graduate became a physician. Under the preceptor system of the last century the older head guided the young student in this respect. Many authorities have felt that the failure to develop understanding by the graduates of the last generation has so mechanized medicine that the tremendous inroads of the cults resulted.

It is to meet the need of understanding that the medical schools today are beginning with the first and second year student and presenting to him the fundamental principles of psychobiology, the science which deals with the personality functions of the normal human being. It is specifically a biological science because it studies living organisms. Psychopathology is also given in the preclinical years so that the so-called abnormal human reactions can be compared with the normal just as pathology of the organs can be compared with histology. Many schools require the student to make a personality study on himself so that he may know himself and thus gain greater insight into others. One point is constantly stressed, the relationship of body and "mind" and the inability to separate them in clinical medicine and surgery. Thus the student reaches his years of clinical work scientifically trained to visualize the sick patient as a biological living organism, a whole individual who is sick rather than a collection of parts one of which may be sick and the others excluded from consideration of the case. Psychiatry makes possible the application of the physiology of the whole organism to the interpretation of the functioning unit.

The physician of the recent generation of graduates has a distinct feeling of insecurity when he approaches the so-called "functional" case. The psychoneuroses and related conditions arouse in him such a sense of unreality that he seeks diligently for a mechanistic cause, and when he does not find it he usually tells the patient that there is nothing the matter with him or that he is nervous and writes a prescription for a sedative. Both courses are disastrous and lead to the physician and his profession "losing face." The profession today is being criticized from the outside and losing patients to the cults. The psychiatrist feels that most of these troubles are the result of the improper understanding and treating of the mild functional mental reactions by the profession. Remember, Osler said that 75 per cent of every physician's practice is made up of cases of "functional" disease.

Therefore, during the clinical years the student is instructed in the proper understanding, diagnosis and treatment of the minor mental reactions and those major states that he will contact. The teach-

ing during the clinical years comes mainly under the following headings according to Ebaugh:² (1) the psychoneuroses (anxiety states, hysteria, obsessive states); (2) toxic and organic reaction types frequently encountered in general practice; (3) the psychopathological implications in chronic organic disease; (4) psychiatric aspects of convalescence; (5) the psychopathological problems of childhood, and (6) instruction of a pertinent, orientation type concerning the major psychoses.

There is no attempt to teach these subjects as a specialty. No effort is made to specialize the material. It is much more important for the student to understand the relation of emotions to physical symptoms and dysfunctions than to be able to distinguish schizophrenia from manic-depressive psychosis. If he is well trained, even this latter differentiation is easier for him than it is for the man who without previous training is given the lectures and interpretations of abnormal mental reactions of a major degree as outlined and discussed according to Kraepelin's method.

The young physician is now being taught these things and he is better equipped to meet the competition of the quacks and cults than were his predecessors. Nurses today are receiving relatively complete courses in psychiatry. But what of the man who has already graduated and who, in spite of his success, frequently feels as if he is floundering when he is faced with these conditions and their interpretations? A few medical schools are offering courses to physicians in these basic subjects as part of their graduate teaching activities. These are not graduate courses in psychiatry in the interpretation and treatment of the major psychoses but are basic science courses in the modern psychiatric viewpoint and principles. Physicians should create a demand for these courses in every medical school and teaching hospital. They should also demand that this aspect of clinical medicine be a part of every scientific program presented for their benefit and, what is more important, they should attend these discussions. The average physician, when he

sees a psychiatric paper on a program, visualizes a discussion on major psychoses and specialized treatment and concludes that as far as he is concerned it has no value to him. But the modern psychiatrist has a message that can be carried back to the physician's practice which will help him with his sick and his well. If the practicing physician will forget his preconceived conception of psychiatry as a highly technical specialty and open his mind to the basic principles as he did to the basic principles of physiology and pathology, he will discover a fascinating, new field of great practical benefit. Watter's¹ closing paragraph in his compendium for students is a fitting summary of this brief discussion: "The student is reminded that psychiatry is not a specialty and is not taught as such in the modern medical school; it is instead a fundamental part of medicine. It is a curative science (in its correct sense), now growing rapidly because it is so badly needed and because the public demands help from the medical profession for its 'mental' as well as its 'physical' ills. The practice of modern medicine demands a knowledge of psychiatry if the physician is to maintain the public's good faith in organized medicine and strive toward preventing and overcoming the iniquities of the quack, the charlatan and the cults. In addition, there are workers in other fields who are fully convinced that they are capable of meeting and treating psychiatric patients without the realization that psychiatry and psychotherapy absolutely demand for their foundation a medical education which is inclusive of psychobiology, psychopathology and psychiatry. This trend, if disregarded by medical teachers and students, will bring serious and dangerous inroads into the peer of professions—medicine."

27th and The Paseo.

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SYPHILIS AND MARRIAGE

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Late in the 15th Century and early in the 16th Century syphilis was epidemic throughout Europe. It is generally agreed by medical historians that the illness was taken to Europe from America by Columbus. The severity of its manifestations is evidence that it had not been known in Europe previously. Today the early manifestations of syphilis are trivial in character in contrast to those during this first epidemic. It is said by many observers formerly to have run an acute febrile course accompanied by symptoms of great severity. Symptoms included fever, headache, pains in the bones

and joints, early skin symptoms simulating smallpox, great prostration and frequently there was a fatal ending early in the disease. However, after four hundred years the disease has become more subtle and deceptive. Its course is less glaring in its destructiveness. The race has developed a resistance to the disease. As stated by Stokes, "Syphilis instead of devouring a man alive on the street now quietly knives him in bed."

Because of the common conception among lay people that syphilis is characterized by eruptions, open sores and deformities about the face, it is diffi-

cult to convince a person that he has this illness unless some or all of these signs are present. Therefore, it is imperative that a more intensive campaign for the education of the public be pursued.

Due to the uncertainty in the course of syphilis, its tendency to relapse and in some cases the development of syphilis of the nervous system in spite of what is considered adequate treatment the question of marriage of a person with syphilis becomes one of grave importance.

Some of the problems to be considered in deciding the question of marriage of a person who has or has had syphilis are: (1) the duration of the infection; (2) the course of the individual infection such as relapse or neurosyphilis; (3) type and amount of treatment; (4) the lack of any criteria by which one may say to the patient that he is perfectly well; (5) the willingness of the patient to return for examination and for treatment; (6) the necessity of the partner knowing about the previous infection in the mate; (7) treatment of the wife at the time of pregnancy regardless of serological or other evidence of infection.

Duration of the Infection.—When syphilis ceases to be infectious is a much disputed question. Keyes states that eight out of ten persons cease to be infectious after three years; ninety-nine out of one hundred cease to be infectious after four years; and the proportion of infections from persons having syphilis of more than five years standing is infinitesimal. However, this infinitesimal number infects just the same as fresh cases. He states that the chances for marital infection are twelve to one during the first year of the disease, five to two in the second year, one to four in the third year and all but nothing after the fourth year whether the patient has been well treated or not. He feels that marriage of a person with syphilis is permissible after five years if during the last two years the patient has been without symptoms and without treatment. If the patient had symptoms after the third year of the disease matrimony should be postponed until two years elapse after the termination of the treatment required to eradicate these symptoms.

Fournier is more skeptical in regard to the transmission of the disease, the length of time necessary after the infection before marriage and the possibility of late transmission of the disease.

Stokes' requirements for the marriage fitness of the average early case are adequate treatment during the first two or three years of the disease, negative serological tests in the blood and spinal fluid and negative cardiovascular and neurological examinations at the end of the fifth year.

Course of the Individual Infection.—There is a wide difference in the damage done by syphilis. One patient may react violently with eruptions and little else while another will show little or no outward signs of the disease and yet be riddled by all of the internal destructive changes. Some cases may have a bad infection from the start and run a

severe course in the beginning but recover with treatment, while other cases may pass through the early stages with little or no local constitutional symptoms and years later develop some form of neurosyphilis.

Always it must be kept in mind that syphilis is a relapsing disease. The forms of the relapse are legion. Therefore the physician must always be on the lookout. No tissue or part of the body is exempt.

The Type and Amount of Treatment.—The treatment is that recommended by any of the modern textbooks or commissions for the study of syphilis. Each physician should familiarize himself with these methods, always keeping in mind the necessity for individualizing the treatment.

The Lack of Any Criteria and Utter Impossibility to Assure a Person That He Is Perfectly Well of Syphilis and May Go His Way.—The presence or absence of the disease is not proven by a serological test. These tests tend to become negative with time and treatment. The fact that the blood test is negative is not proof that the disease is cured or that the patient is not infectious. A negative blood test does not mean that the patient cannot transmit the disease. No patient should be permitted to marry without an examination of the cerebrospinal fluid. Not infrequently changes are found in the cerebrospinal fluid of a patient with a negative blood Wassermann. Cases with negative blood and spinal fluid serological tests and negative physical and neurological findings are known to relapse, or years later to develop tabes or general paralysis.

Willingness of Patient to Return for Examination and Treatment.—It is imperative that both parties return at regular intervals for life for examination. In spite of the outward appearance of good health, as a matter of insurance the infected partner should receive a course of treatment at intervals for the rest of his or her life. Should marriage take place before the expiration of the five year period, these examinations should be at six month intervals and later at intervals of one year unless evidence of relapse is found.

Partner Must Know the Facts.—Regardless of laws or customs to the contrary the uninfected man or woman who is contemplating marriage with a person with syphilis should be informed of the facts regarding the illness of the partner. An intelligent stable individual should know the uncertainties of cures, the tendencies to relapses, especially late in the nervous system, the likelihood of transmission of the disease to the uninfected partner and to the offspring, the necessity for frequent examinations of both parties including blood and spinal fluid Wassermann if indicated and the necessity for treatment should conception take place.

Treatment During Pregnancy Should the Wife Conceive.—Regardless of the difference in opinion as to treatment of the Wassermann negative and physically negative wife of a syphilitic husband, it

is much safer to treat her actively during the entire course of pregnancy. Active treatment should be begun as soon as she is known to be pregnant and should be continued through the pregnancy.

Examination of the Child.—Special precaution should be taken to examine the children of these marriages. Too much reliability should not be placed upon Wassermann tests made of the blood from the umbilical cord. Many observers stress the uncertainties of the Wassermann reactions in the newborn. Sylvester, Jeans and Cooke, and others have pointed out the unreliabilities of the Wassermann tests during the first two months of life. In the beginning a syphilitic child may have

a negative Wassermann and later a positive. As many as 50 per cent of congenitally syphilitic children do not show physical signs of the disease until about the time of puberty or adolescence.

Examination of the Syphilitic Person for Marriage Fitness.—To be of value an examination must include careful history of the course of the illness; amount, kind and length of treatment; habits of the patient; serological tests of the blood; careful examination of the cerebrospinal fluid; complete physical and neurological examinations. In some cases an additional period of observation is desirable.

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DEVELOPMENT AND ESSENTIALS OF THE PRIVATE PSYCHIATRIC HOSPITAL

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The history of the growth of medical knowledge may be compared to water running down hill, following the course of least resistance until encountering an obstruction and then piling up sufficient weight and force to batter down or to dissolve the problem damming its progress. In other words, the first part of the human body to be brought to the attention of early day practitioners was that part most obviously affected, and incipient medical hypotheses were conceived from observance of conditions affecting those parts of the body most easily accessible to the hands and within the scope of a limited knowledge of anatomy.

Ancient practitioners were better acquainted with the fact of fractures than with the theory of typhoid, and Singer¹ speaks of types of crude surgery known in prehistoric times and resembling, in some ways, modern surgical procedures.

The study and treatment of diseases was colored by superstition and demoniacal theories appropriated by early Greeks from Mesopotamian practitioners, according to Singer.¹ Therapeutic medicine still lagged behind surgery when the curtain was raised on the era of modern medicine in the late fifteenth century.² During the next two hundred years, however, research and exploration began to close the gap. Many new drugs, some as dangerous as others were valuable, were introduced from newly discovered parts of the world. Physiology had its start as a science.

During that period, too, appeared a more rational approach to nervous and mental disorders which has developed through an unbroken, although until recently leisurely, progression of scientific research into the science of psychiatry as it is known today.

The first authentic references to nervous and mental disorders, as cited by Henderson and Gillespie,³ are found in the Books of the Old Testament where Saul, David and Nebuchadnezzar are famous examples.

As in the case of medical knowledge other than fracture, rudimentary conceptions of nervous and mental illnesses were based on demoniacal theories. The start toward rationalization of this science was retarded and later progress was not rapid due perhaps to the fact that early practitioners were unable to see a mental disorder as they could see a fractured leg or a syphilitic sore and perhaps due, too, to the possibility that only the more maniacal person achieved the attention of a people not so adjusted to the niceties of behavior as our civilization likes to think itself to be.

Mental illness did present a problem, however, and at least one of the early steps taken toward control of afflicted persons specified individual and private care.

Plato⁴ made this pronouncement: "If anyone is insane, let him not be seen openly in the city, but let the relatives of such a person watch over him at home in the best manner they know of, and if they be negligent, let them pay a fine."

In the light of recent therapeutic developments, one scarcely would be justified in saying that early methods of inflicting treatment upon the mentally afflicted were altogether in error in theory, or that those devoting their efforts and energy to this work were without inspiration in their practical applications of active treatment. There was, for example, in the sixteenth century a device resembling a brick kiln in shape which might be compared in theory, and not unreasonably, to the modern fever cabinet. An essential feature of the sixteenth century model, however, was a fire burning under the patient's head for the announced purpose of driving out the mad thoughts. Other forms of active treatment involved distinct shocks to the patient's nervous system as is done today by entirely different and more scientific means.

It is possible the results achieved by these active treatment measures contributed to the slow prog-

ress of psychiatry by causing thoughtful physicians to abandon the problem until they learned more about functions less complex than those of the mind.

Although real hospitalization for the mentally ill, according to Meyer,⁵ may be said to have begun in the nineteenth century, there had been places of restraint before that. Mildly insane were cared for at shrines or wandered homeless. Those deemed a menace to the community were sent to prisons or were chained in dungeons.

In 1676 there was an honest attempt at segregation and humane housing of the mentally ill by the rebuilding in England of Bethlehem Royal Hospital for that purpose. Treadway⁶ tells, however, that Bethlehem Royal Hospital soon fell into the hands of the management of Bridewell prison and the two institutions became closely associated in the public mind. The success of this worthy but poorly planned and unenlightened venture is easily understood from the popular contraction of the hospital's name, "Bedlam," handed down to us as a part of the language.

"The influence of these early policies," says Treadway,⁶ "especially toward the 'criminal' and the 'insane' still bears its mark upon public outlook since these principles, adopted in the Old World, followed the colonists to America as a part of their philosophy."

A survey, reported by Henderson and Gillespie,⁷ of the English "madhouses" in 1815 uncovered many conditions which more than a century of supposed progress has not appreciably altered in some of our public and private institutions. The report condemned overcrowding, inadequate staffs, excessive and unwarranted use of physical restraint and noisy patients mixed with quiet ones. This survey, although at the moment it had little or no influence upon the conduct of these institutions, was one of the first results of the humanitarian movement which began about 1792 when Pinel struck the chains from the mentally ill in Paris, and had its ultimate result in the work of Dorothea Dix and the establishment of asylum in the United States.

"These (and other) great humanitarians," say Strecker and Ebaugh,⁸ "established, or at least gave currency to the belief, that those who were insane were sick, that any other conception was indefensible, and thus the path was cleared for intensive inquiry into the real nature and causation of mental disease."

Late in the nineteenth century, the asylum made its appearance in America. This system of hospitalization was without question a remarkable improvement, at the time, in the general care of the mentally ill. But psychiatry stood on the threshold of becoming an individual, progressive medical science.

The asylum system was an achievement of the humanitarians. It took the mentally ill out of prisons and was an attempt to provide for all care equal to that available in the better private nervous

and mental hospitals, some of merit having been established in the United States a century before.

The private hospital system spread to provide the services that for various reasons asylums were unable to render, and to fill the needs of those who abhorred the thought of the old time asylum only little more than they were scandalized by the thought of mental ill health affecting a relative.

As Punton,⁹ founder in 1888 of the institution which has become the Neurological Hospital, wrote, "... at this early period there was prevalent in the public mind and even the medical profession a curious sort of antipathy or morbid prejudice which associated shame and disgrace with certain forms of nervous and mental disorders. As a result, the nature and character of my special practice was misunderstood and greatly hindered the progress of my best efforts to establish a suitable hospital for nervous and mental invalids in Kansas City. Confronted with this dilemma, I was compelled for several years to reluctantly receive such patients in my home or place them where they did not belong in the wards of the various general hospitals of the city."

The effort to overcome these prejudices, which even today have not been wholly dispelled, was the task of all psychiatrists and was another factor retarding progress of the science.

Henderson and Gillespie³ say, "Progress in this branch of medicine has been slow, but the difficulties to be contended with—professional apathy, public prejudice and the inherent complexity of the subject—have been very great, and the advance which has actually taken place has not been sufficiently recognized."

There are today in the United States the governmental hospitals for patients with nervous and mental illnesses, and the nongovernmental, or private nervous and mental hospitals. A few of the private hospitals, especially the older hospitals in the East, are heavily endowed. Others, as in Kansas City, Topeka, Dallas and in other sections of the country, have had to achieve the status of progressive hospitals by the merit of their own activities.

Each of the two classifications, governmental and nongovernmental, may be subdivided, for, says Meyer,¹⁰ "For the treatment of mental disorders, the United States shows a wide range of unusually inadequate and many unusually modern provisions." That statement points to the great schism developing between the custodial and the acute, active treatment hospitals, and between hospitals of each group.

Another quotation from Dr. Meyer emphasizes one of the fundamentals widening this breach. "Unfortunately," he says,¹⁰ "to maintain hospitals and hospital organization in small as well as in large communities appears to call for too great an expenditure for disorders which the general medical profession and the public—up to but a few decades ago and in many places up to the present—

have largely left to charity and moral advice and exhortation and to the 'asylums' now called hospitals."

There is and has for centuries been a definite place for custodial institutions, and until recently all nervous and mental hospitals were principally custodial in function. The acute, active treatment hospital, however, is a comparatively recent development of the tremendous advancements made in the science and knowledge of mental health problems.

The custodial institution of today is too often a public or private hospital at which the custodial function is the principal activity, but at which attempts are made to devote a minor portion of the work, usually with inadequate fundamentals, to active treatment. Such an institution has not kept pace with the advancements for the custodial type of institution and is unable to keep pace with the fundamentals of modern active treatment hospitals.

European procedure provides a worthy example of progress in custodial institutions, having large colonies or farming hamlets to which those mentally ill may go and live comparatively normal and free lives. Huge, cloister-like buildings for the detention of these sufferers are being abandoned, says Meyer.¹⁰

Although under medical supervision, those colonists are as a whole happy in their comparatively free life, and are not caged in great ward rooms or confined to rocking chairs in long, drab corridors, not herded like sheep from hall to occupational therapy, from occupational therapy to benches in the yard, from benches to overcrowded, odorous dormitories.

That portion of the European method is a rural adventure into the mysteries of mental health. In the urban centers with populations of 50,000 or more are the smaller, active treatment hospitals for acute cases. Only when the illness has been adjudged to be chronic is the patient sent to a rural colony.

Whereas chronic, not "incurable," mental illness is now the basis on which these patients are judged, Meyer¹⁰ tells of a policy adopted in England by reason of the force of public opinion during the war which provided that no soldier should be sent to an asylum unless it could be proven that he was suffering from an incurable mental disease or, after a probation period of twelve months, his illness was adjudged to be incurable. Under such a plan the mentally ill are assured of every reasonable opportunity for rehabilitation before committal to a custodial institution.

"The prevention of insanity by early treatment in psychiatric clinics," writes Rolleston,¹¹ "has been an important step in the prevention of mental disorders."

Insanity, it should be remembered, according to Treadway¹² refers to "legal commitment and compulsory segregation for the protection of both the patient and the community," and is "a term that has no other meaning in medical terminology."

Many factors must be considered before it may be determined whether an institution, either governmental or private, is adequate or inadequate and whether it should be custodial or for active treatment. A few of the more important factors which must be considered in judging the qualifications and aims of a nervous and mental hospital are modern diagnostic and treatment facilities, the availability of these facilities to every patient of the hospital who may possibly be benefited by their use and the adaptability of these facilities to all phases of modern psychiatric therapy; the medical personnel and whether it is adequate in number and in ability, whether there is a sufficient number of competent physicians to have the necessary personal contact with each patient who may be made to respond to treatment and whether those physicians have had the training and the experience necessary to a proper understanding and handling of the peculiar problems of mental ill health; the nursing personnel and whether it is sufficient in number for almost individual attention to the patients, whether it has been properly trained to understand the types of illness with which it has contact; the attitude of the nursing and attendant personnel toward the patients, whether they have an attitude of helpfulness and interest in the welfare of the patients or if they must keep the patients cowed by clubs and threats using as an excuse their lack of numbers or, as is unfortunately sometimes the case, because of their own bullying and brutal characters; the individuality of treatment and whether the patients are victims of treatment by rote, each after a classification diagnosis receiving treatment identical with that given to every other patient in the institution who has been shunted into that classification.

Unfortunately, some institutions have not progressed far in their stewardship from conditions which aroused England in the eighteenth century when George III, subject to periodic attacks of mania, was at times confined in a small "madhouse" in Lincolnshire. His experiences are related by Henderson and Gillespie:¹³ "The royal patient was treated with singularly little respect. No hesitation was evinced in knocking him down. He had to submit to blisters and a strait jacket."

In enlightened psychiatric hospitals of today any indication of the possibility of mistreatment or abuse on the part of nurse or attendant is a cardinal sin carrying with it a minimum penalty of summary dismissal.

The Menninger Clinic¹⁴ proposes these factors as being among the essentials of modern psychiatric treatment: "Modern equipment, fireproof buildings, beautiful grounds and comfortable surroundings are necessary. Even more important are the personalities who influence the patient's recovery. It is essential that the personnel of a sanitarium be adequate in number and exceptional in character and scientific training."

This conception of the influence of personalities

on the patient's recovery was of paramount importance in rudimentary private nervous and mental hospitals of the enlightened era. Without the advantages of modern therapeutic procedures, the physician prescribed his treatment in the form of tonics and sedatives and by means of static machines, but the patient possibly received his greatest benefit from his segregation and from the personal influence of his physician. There is one form of active treatment of which the patient may not be consciously aware. This is found in his physical surroundings and in his associations with the nursing staff.

Physical features are designed with Strecker and Ebaugh's¹⁵ caution always in mind that, "The patient must be protected from the consequences of his psychotic behavior."

Mentally ill patients almost without exception are at all times aware of their surroundings and of confinement, even during the most severe mania. Understanding this awareness to be a positive but little known fact, the psychiatrist of today has discarded jail-like bars and the heavy screen formerly used to shroud nervous and mental hospital windows and has replaced them with specially constructed steel casement windows which provide even more safety, yet through design and operation reduce considerably the sense of confinement.

The trend in furnishings and decorations is away from drab, cell-like rooms and even away from the appearance of the general type hospital rooms. Late and comfortable styles of metal and wood furniture with low beds have been installed in the progressive psychiatric hospital. The color of the paint on the walls and the designs of wallpaper are chosen with consideration for the effect upon the patient's psychotic condition.

Although social contact between patients with certain similar mental illnesses may often prove beneficial, no two nervous or mental patients should occupy the same hospital room. All wards and semi-private rooms in the Neurological Hospital have been abandoned as such, the large ward rooms having been converted into recreation, game and music rooms, and each patient's room is now for single occupancy only.

Cleanliness is seldom considered a virtue by mental patients. Common toilets provide an insubstantial and possibly dangerous means of contact. Today, virtually all rooms in private psychiatric hospitals have private toilets and lavatories.

Nursing problems in the care of the mentally ill were studied by discerning ancients with more judicious understanding than has been evidenced by many more recent custodians of the mentally ill. Caelius Aurelianus¹⁶ referred to the tactfulness required in attendants for the avoidance of antagonism and in addition recommended limited and cautious use of physical restraint and advocated recreational therapy.

Even with the high ratio of physicians generally maintained in private psychiatric hospitals of today,

it is naturally impossible for any physician to devote his entire time to one patient. Almost constant contact with the patient is of clinical importance, and so this task must be undertaken by the nurse.

Her services are without value, however, unless she has the ability and the training to extract valuable clinical information concerning the patient's psychotic condition from this contact, and is competent to advise the physician of behavior and clinical symptoms which may affect the patient's therapeutic progression.

She must at the same time have the talent and the character to carry out suggestive and psychotherapy as outlined for the patient by the medical staff.

Suicide is such a constant threat, and particularly when the depressed patient begins to improve, that tactful vigilance must never be relaxed. Strecker and Ebaugh¹⁷ point out that the best protection is the understanding and efficient psychiatric nurse.

"Always," say Strecker and Ebaugh,¹⁸ "but particularly in severe mania and deep depression, it is important to carry out for the patient or assist him in the general hygiene of the body, the mouth and teeth, the skin, the hair, the nails, etc."

These are but a few of the reasons that some private psychiatric hospitals maintain the high ratio of two or two and one-half members of the nursing and technical staff to each patient.

Before active treatment may be intelligently started, the physician must have a thorough understanding of all essential ramifications of the patient's psychotic condition. To gain this knowledge he must depend entirely upon his own training and experience and upon intense personal application for, as Strecker and Ebaugh¹⁹ say, "The psychiatrist has no tricks, reliable short cuts, and but few instruments of precision at his command.

"In psychiatry, the mere naming of a disease process even though it be correctly designated has but little significance. Often an expert may rapidly glance at a cross section of a psychosis and type it exactly, but nothing of great value has been accomplished. It must be emphasized that we are dealing with sick human beings and not with a collection of symptoms."²⁰

"It is essential for the successful approach to psychiatric problems that (1) the examiner must have a clear idea of the data necessary for the understanding of the case; (2) he must have a sense of continuity and purpose in the examination; (3) he must approach the patient in a genuine spirit of sympathetic understanding and helpfulness, and (4) he must be willing to spend whatever time and energy are necessary to achieve the establishment of that mutual rapport which will work toward a solution of the problem."²¹

Laboratory, roentgen ray and physical examinations are made upon admission. The results of these investigations are coordinated with the findings of the neurologist and psychiatrist for diagnosis.

tic purposes and to determine how the type of treatment prescribed should be modified to meet the particular problems of the individual patient. Laboratory and roentgen ray equipment situated within the hospital and competent personnel are essential to prompt and accurate checking of the effect of treatment with previously obtained results, and to study the reactions and response of the patient to methods of treatment.

Psychiatric progress has brought about the inclusion in private psychiatric hospitals of many new developments and much new equipment, for the progressive psychiatric hospital of today must have facilities ready to provide properly many forms of active treatment to all types of nervous and mental illnesses and allied disorders.

"All the principles of therapy employed in medicine, surgery and the specialties should be employed by the psychiatrist," says Strecker and Ebaugh.²² "Always the patient is a problem of internal medicine."²³

Psychiatrists also have their work in other fields of medicine for, says Treadway,¹² "... physical diseases often have a psychic or mental component associated with them."

In addition to the shock, fever and convulsive treatments and their many therapeutic ramifications now being used, and the other methods of hydrotherapy, physiotherapy, occupational therapy, recreational and drug therapies, psychotherapy is an integral part of the treatment of mental illnesses.

"Psychotherapy," says Ebaugh,²⁴ "includes the more or less common sense methods as evolved by the American School of Psychiatry under the leadership of Adolf Meyer, utilizing rapport based on thorough understanding of the patient by the physician, aeration or ventilation, desensitization, re-education of patient and his family and correcting all contributing physical factors as far as possible."

The private institution psychiatrist of today is not content to sit back and adopt the ideas of others. So exciting, so vital and of such tremendous import are the avenues being opened for those who intelligently study and treat the psychoses that research and scientific contributions have become one of the psychiatrist's most important functions, which is but another reason for the necessity of a properly trained and adequate medical and nursing staff.

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THE LOST DRAIN AND ITS ROENTGEN RAY IDENTIFICATION

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When a drain is placed through an abdominal incision or from the peritoneal cul-de-sac into the vagina or in other locations it is supposed to remain a certain time and then be removed, but it does not always behave as is intended. The innocent appearing drain occasionally causes serious trouble for the patient and for the physician. For example, when the time comes to remove the drain it may be missing. What has become of it? Was it inadvertently thrown away with the dressings or the douche pan contents, or has it slipped inside the body cavity? The clinical records, including the bedside notes, are searched for information that it loosened and came away, but without result. The assistant physicians and nurses are questioned but none has seen it.

This accident probably occurs more frequently than is generally supposed. Only a small percentage of such cases would reach publicity as an article or other report in medical literature, and yet a partial search, narrowed down to rubber tube drains left in abdominal operations, showed seventeen reports of drainage tubes remaining in the abdomen for periods varying from two weeks to twelve years. In nine cases the rubber tube was found at secondary operations for troublesome symptoms, the tube having remained undiscovered from one to two years in most cases although in two cases the period had extended to twelve years. In one of these two cases the tube penetrated the intestine causing obstruction and in the other it penetrated the bladder. In addition to these nine terminations a tube was found in two cases when an abscess was opened two months and three months, respectively, after operation. In three cases a tube was removed from a persisting sinus,

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one after two months and another after five years. In two cases a drainage tube was passed per rectum, one fifteen days after operation and the other considerably later. Lawsuits resulted in several cases.

Although a drain is lost in only a small proportion of drainage cases, the seriousness of the situation calls for careful consideration because of the possibility that the drain has slipped inside the body. While this situation is infrequent, most surgeons handling large numbers of cases have been troubled by it. In the last year two cases have occurred in my experience. The first was a case of complete abdominal hysterectomy. A small drain of tightly rolled rubber sheeting was placed, extending from the peritoneal cul-de-sac to the vaginal vault. When the time came to remove the drain, it was missing. Search of the records and inquiry of assistants and nurses brought no information concerning it.

As to possibilities, the drain might have slipped into the vagina and been thrown away unnoticed with the douche pan contents, or it might have slipped into the peritoneal cavity. Roentgenogram of the pelvis and lower abdomen gave no indication of the drain. Roentgenogram of the type of drain used in the case also was negative, showing that the drain was not opaque to roentgen ray. That made it necessary to investigate the drainage tract. The tract leading up from the vaginal vault was explored with long forceps and no drain felt. The exploration was extended into the pelvic cavity as far as was considered safe. In various directions the forceps blades were opened widely enough for a drain of that size to drop between them and be caught as they were closed and withdrawn, but no drain came out. This exploration by instrument and the absence of any palpation signs of the rather stiff drain on careful vaginal and rectal examination indicated that the drain was probably not in the drainage tract nor low in the peritoneal cul-de-sac. With the patient quiet in bed, there was little probability that the drain had been carried higher in the cavity in the few days since it was placed. The greater probability was that it had become loosened and slipped into the vagina, had been washed out with the douche solution, had remained hidden under the overhanging sides of the douche pan and been thrown away unnoticed.

Though there was strong probability that the drain had slipped out and been thrown away as indicated, the possibility that it was still in the pelvic cavity with outlines obscured by the post-operative reparative exudate had to be considered and the pelvis watched accordingly. When the patient went home I wrote her physician, detailing the facts and stressing the necessity of check-up examinations and of sending the patient back at once if any local disturbance developed so that operation could be carried out promptly if there should be symptoms warranting it. No symptoms developed and later examinations have shown no evi-

dence of special irritation in the pelvis or lower abdomen.

The second instance was a drain in the uterus. After uterine curettage and extensive conization of the cervix, a small tube drain was placed in the cervical canal. When the time came to remove the drain it could not be found. Examination of the records and inquiry of assistant physicians and nurses brought no information about it. The uterine cavity was large and the cervical canal fairly open. The drain might have slipped into the uterine cavity or out into the vagina. The latter was more probable but the former was possible. The small tube drain used was of black rubber and was found to be not opaque to roentgen rays, hence roentgenogram could give no indication as to whether or not the drain was in the uterine cavity.

Under hyoscine-morphine analgesia the cervical canal and the endometrial cavity were explored with the uterine forceps, the blades being opened sufficiently to allow the drain to drop between them and be caught as they were closed and withdrawn. No drain was found and after repeated manipulations it was assumed that the drain had slipped into the vagina, been washed out with the douche and been thrown away unnoticed. Though that assumption was probably correct, I could not be sure and a troublesome uncertainty remained. It is surprising how material may hide in the uterine cavity and be missed in instrumentation. I recall an experience with a long quarter inch gauze drain. The patient had a pelvic tumor of questionable origin and a uterine discharge. Abdominal operation was required for the tumor with possible complete hysterectomy, and the quarter inch strip of gauze moistened with iodine was packed into the uterine cavity to sterilize it and prevent leakage of infective discharge in case hysterectomy were done. Hysterectomy was found unnecessary so at the close of the operation the small gauze strip in the uterus was to be removed. This seemed a simple procedure but it proved quite otherwise. Repeated manipulations with forceps, opening and closing in the dilated canal, brought only blood. It seemed that every part of the cavity and cavity wall had been searched and grasped at and still no sign of the gauze. A fresh piece of gauze held in the forceps was then brushed about in the cavity and brought out, but still no evidence of the iodine gauze. But following this, another effort with the forceps, opening and closing, caught the original strip and brought it out, much to our relief.

Though the surgeon previously may not have given any particular thought to the subject, when he misses a drain and can get no information about it there are two items or problems which strike him promptly and forcibly. The first is the determination as to whether or not the drain is still in the patient, and the second concerns the measures to be taken to prevent subsequent drains getting away from where they belong. In regard to the first, roentgen ray visibility of the drain used is

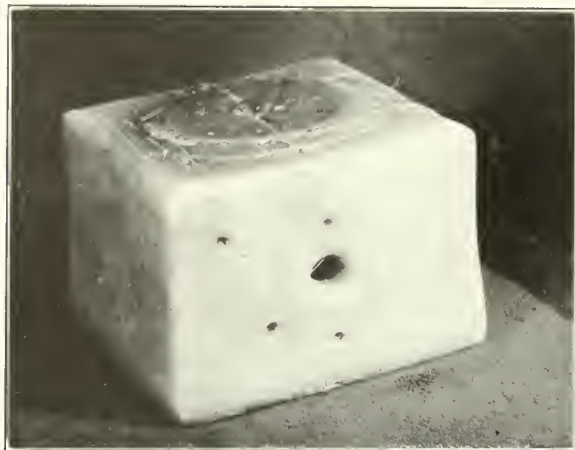


Fig. 1. The paraffin block constituting the model pelvis. The dimensions are about 10 by 12 by 13 inches.

the only thing short of operation which will show certainly whether or not the drain, not found in the drainage tract, is still in the body. Even when the drain simply has slipped to the deeper end of the drainage tract, roentgenogram will show its presence with much less disturbance of the wound than the exploratory probing otherwise necessary to locate it. It would seem therefore that drains should be made of roentgen ray visible material if that is practicable. The practicability involves finding roentgen ray opaque material which can be used for drainage purposes without serious disadvantage in regard to stiffness, local irritation, general absorption effects or high cost. Taking up the problem, I consulted medical literature but could not find the needed information.

EXPERIMENTAL WORK

I appealed to Dr. Sherwood Moore, head of the Mallinckrodt Institute of Radiology and in charge of roentgenology for Washington University and



Fig. 2. A roentgenogram of the paraffin block. We were rather disconcerted to find in our model patient so many bars, nails and other metal shadows, but fortunately they were not in locations to interfere with the drainage tube tests.

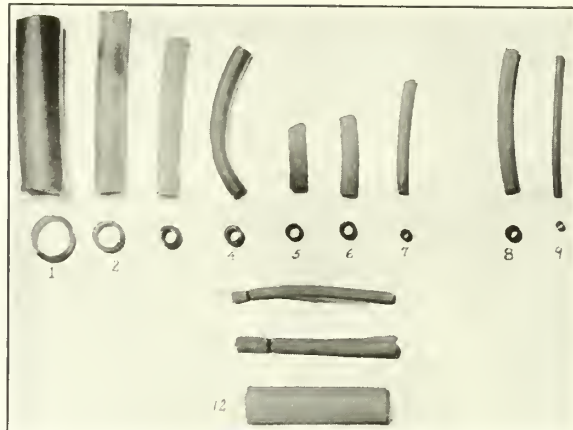


Fig. 3. A photograph of the first lot of drainage materials tested showing black tubing of various sizes, white tubing, red tubing and cigarette drains. Nos. 8 and 9 are ordinary red tubing, No. 9 being the Dakin tube size. Nos. 6 and 7 are comparable sizes of regular black tubing. Nos. 9 and 7 are the pieces compared in figure 5. No. 9 represents size 1 ($\frac{1}{16}$ inch hole) in figure 14 and is the size of red tubing shown in figures 8, 9, 10, 11, 12 and 13. In the pelvic films the tubing appears larger because of the distance from the film. This widening of the tube shadow by distance is well shown by comparing the shadows of the same tube in figures 12 and 13.

Barnes Hospital, and his associate, Dr. Wendell G. Scott, who had personally handled the roentgenology of our "lost drain" cases and had taken special interest in them, and we decided to try to get the needed information by experimentation. In this experimental and clinical work much help was given by Dr. Allan B. Phillips and Dr. Wm. Y. Burton of the roentgen ray service and their sustained interest is greatly appreciated.

For experimental purposes a model pelvis was constructed to simulate closely the three important factors encountered in patients; namely, the tissue resistance, the distorting distance effects and the confusing bone shadows. This model consisted of a bony pelvis (female) imbedded in a large block of paraffin. Paraffin has about the same roentgen ray resistance as the soft tissues, and Dr. Scott made the block thick enough to simulate the average body. A canal was made in the paraffin block in the approximate position of the vagina so that drains of various types could be placed in the center of the pelvis (in the location of cul-de-sac vaginal vault drainage) for roentgen ray testing. When the model was about completed I suggested that we might have difficulty in simulating the many irregularities of density found in the actual patient with the resulting confusing lines and graduations in shadows. Dr. Scott assured me that there was no cause for anxiety in that respect as the difficulties encountered in handling the melted paraffin had supplied all the irregularities needed and some to spare. After filming the first set of materials in the model pelvis representing a patient of average build, more paraffin was added so as to simulate conditions in an obese patient. Our intentions were to have the model present fully as much difficulty in film interpretation as was likely to be encountered in the actual patient, and a comparison of the



Fig. 4. A roentgenogram of the materials made by laying the articles directly on the film. From this film one would suppose that any of these tubings if in the body would be shown by roentgen ray but when placed in the pelvis they gave very different results.

films of the model with the films of patients indicates that we succeeded.

The paraffin block is shown in figure 1. It is about 10 by 12 by 13 inches. A roentgen ray film of this block is shown in figure 2. It was rather disconcerting to find that our model patient presented so many nails, bars and other metal shadows. But on consideration it was realized that the shadows of the large articles holding the pelvic joints together were not in the drain locations and that the small wire loop at the sacrococcygeal joint was so distinctive in appearance that it would not interfere with the identification of drain-tube shadows. In fact, the wire loop gave a good uniform metal shadow for density comparison and orientation of the various films.

TESTING DRAINAGE MATERIALS

The first thing to do was to determine the degree of roentgen ray visibility of the various drains used in the operating room. Figure 3 is a photograph of the first series of drainage materials tested and figure 4 shows a roentgenogram of the same materials made by placing the articles directly on the film. This film gives the impression that most any drainage tube, even the rolled "cigarette" drains, could be identified in the body by roentgenogram. However, roentgenograms of the drains in place in the pelvis gave very different results.

Beginning the roentgen ray visibility tests, various sizes of black tubing and red tubing were placed in the center of the pelvis and filmed. These tests demonstrated that black rubber tubing inside the pelvis gave no satisfactory shadow for identification but that red rubber tubing gave a good shadow. Figure 5 contrasts the visibility of the smallest red tubing (Dakin tubing) with black tubing slightly larger. Here it is seen that even the smallest red tubing shows clearly in the depth of the pelvis while the black tubing beside it does not show at all.



Fig. 5. This shows small red rubber tubing (Dakin tubing) and black rubber tubing of the same size placed side by side in the model pelvis in the location of cul-de-sac vaginal vault drainage. The red rubber shows well while the black can scarcely be seen.

The cigarette drains of tightly rolled thin rubber sheeting were then placed in the pelvis and filmed. The ordinary size and the double size cigarette drains shown in figure 3 were placed together in the vaginal vault area. Neither of them gave a satisfactory shadow. In fact they show so little that this film was used as a clear film of the model pelvis (figure 2).

These tests established two facts, first, that red tubing can be clearly visualized and identified in the center of the pelvis and, second, that black tubing is lost to visualization when placed in the pelvis. The second fact requires careful study. Why is it that the black tubing and cigarette drains, which show fairly well in the roentgenogram in figure 4, do not show in the pelvic films? The answer to this question brings out various factors and difficulties encountered in roentgenization of pa-



Fig. 6. A photograph of the second collection of drainage materials tested showing amber tubing, red tubing, catheters, a combination of silver wire in black tubing and needles with all specimens numbered for testing in the model pelvis.

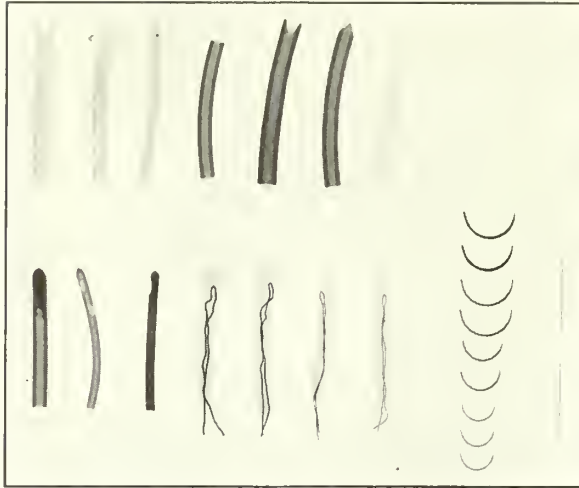


Fig. 7. A roentgenogram of the articles of the second collection made by placing the articles directly on the film. Notice the fading of the amber and black tubing. Catheters of different types are shown as to roentgen ray visibility; also, silver wire from the large size (gauge 20) to the small size (gauge 30).

tients to determine the presence or absence of a foreign body of only relative density. In the pelvic films the picture is taken through the body tissues (simulated) which dims the shadows and outlines. Again, the drain is in the center of the pelvis and hence a considerable distance from the film. This spreads the shadow and thins it and thus dims it still further. Notice that the shadow of the visible red tube is considerably wider than the tube itself, and the farther from the film the tube is situated the wider and dimmer its shadow will be. Yet again, in the pelvic films the outlines of the drain shadows are somewhat obscured by complicating shadows which are always encountered in roentgenizing a patient, whereas in figure 4 the homogeneous background assists in setting off the drain outlines. These three factors operating together reduce the roentgen ray visibility of black tubing and cigarette drains in figure 4 to nonvisibility in the pelvic films in which the conditions of clinical work are simulated.

Tests were made also with amber rubber tubing, with catheters and with silver wire in tubing to increase the visibility. Figure 6 is a photograph of this second series of articles tested with identifying numbers and letters. The roentgen ray shadows are shown in figure 7.

Amber rubber tubing is the sulphur-free tubing used for blood transfusion and glucose sets and other medical and chemical procedures which might be disturbed by sulphur content. As was to be expected, we found this tubing had no more roentgen ray visibility than the black tubing. Though each shows well when laid directly on the roentgen ray film they both disappear when placed in the center of the pelvis, whereas the red tubing shows well.

As to the chemical content of rubber tubing in relation to roentgen ray visibility, the black tubing, generally used for drainage, contains some sulphur



Fig. 8. A roentgen ray film showing part of a catheter and a piece of red rubber tubing (Dakin size) side by side in the center of the model pelvis. The ordinary red tubing shows practically as well as the catheter and is preferable for drainage use.

and carbon-black. But these offer little help toward roentgen ray visibility which requires chemicals of high density. Red tubing, also used freely for drainage especially in the small size (Dakin tubing), contains antimony. Mr. Hanna, chief chemist of the Davol Rubber Company who responded freely with information as to composition of different tubings when my request reached him through Mr. Ofenstein of the Ozark Rubber Company, states that the red tubing contains antimony sulphide which gives the red color and also aids roentgen ray visibility because of its decided density. Catheters contain also considerable zinc oxide which assists in roentgen ray visibility. In the various tubings mentioned, the chemicals are evidently in such fixed combination that there is no absorption in drainage use for all three types are used regularly in contact with tissue over long periods. Of course, barium and lead compounds with their high densities are particularly opaque to roentgen rays and may be used to give visibility under special conditions when required.

There are two types of red tubing. One is soft and pliable and excellent for drainage use while the other is stiffer and more likely to cause pressure necrosis at the ends on long contact. The tests show that there is practically no difference in the roentgen ray visibility of the two, hence the former is to be preferred for use.

I was informed that catheter material could be drawn out into drainage tubing if desired. As to the physical characteristics of the catheter material, it is somewhat stiffer than the regular red tubing and more brittle and easily broken when manipulated for T formation. Hence its use for drains would not be advisable unless these disadvantages were overbalanced by much greater roentgen ray visibility. Figure 8 shows part of a small catheter contrasted with red Dakin tubing. It can be seen that there is little difference in the roentgen ray visi-



Fig. 9. A roentgen ray film contrasting the wire in the tube combination with ordinary red tubing. The wire is 30 gauge and is in black tubing which does not show. The ordinary red tubing shows as well as the silver wire, hence the use of wire is not necessary.

bility of the two, consequently the ordinary red tubing is to be preferred for drainage use.

Incidentally, figure 8 is the first film shown of the model after it was enlarged. In order to add sufficient paraffin to simulate satisfactorily a very obese body with the added difficulties in roentgenography, it was necessary to remelt the old paraffin and start over again. This film shows that in the manipulations, the coccyx was displaced, putting the metal loop in a different location.

It was thought advisable to consider the practicability of using silver wire to give roentgen ray visibility to black tubing or to increase the visibility of red tubing if needed, and Nos. 23 to 26 in figure 6 show the specimens prepared for that purpose. The wire was held in place inside the tube by looping it through the wall a short distance below the upper end. The black tubing around the wire does not show in the pelvic films, the wire only being visible. Several sizes of wire were tested. The heavy wires are too stiff and inconvenient for the purpose. The finer wires are pliable and easily manipulated and are practicable for use in this way if such use is found necessary. Figure 9 compares the visibility of fine silver wire (gauge 30 in black tubing) with small red tubing. In this film it is seen that the small red tubing gives reliable visibility practically as good as suitable silver wire, hence the use of wire is not necessary.

Summing up the results of the drain visibility experiments with the drains in the center of the model pelvis, it seemed clear that drains of ordinary red rubber tubing of even the smallest size (Dakin tubing, $\frac{1}{16}$ inch opening) should be visible by roentgen ray in the center of the pelvis of any patient, even the most obese. The next step was to test this tubing in actual work in an effort to learn whether any unsuspected difficulty might be encountered.



Fig. 10. A roentgen ray film showing a red tube drain (Dakin size) in position in an obese patient convalescing from complete abdominal hysterectomy for carcinoma of the corpus uteri. Even the constriction of the drain by the vaginal vault sutures is apparent. This drain is longer than necessary, extending down the vagina back of the pubic bone. Incidentally, it demonstrates that this smallest size of red tubing can be visualized through bone shadows.

TUBE DRAINS IN PATIENTS

The red tubing was then used regularly in operative work where drainage or a temporary safety vent was needed. Figure 10 is a roentgenogram of an obese patient convalescing from complete abdominal hysterectomy. The operation was for carcinoma of the corpus uteri. The patient was given intra-uterine radium treatment and deep roentgen therapy and later at a selected time the uterus was removed with the adnexa and adjacent upper parts of the broad ligaments. The film shows the red Dakin tube drain in position extending from the peritoneal cul-de-sac to the vaginal vault. Even the constriction of the drain by the suture closing the top of the vagina is apparent. This drain is longer than necessary, the lower end extending down the vagina under the pubic bone. Incidentally, this lower end demonstrates that the small red tubing may be visualized through bone shadows. Figure 11 is a film of the pelvis of a very obese patient convalescing from vaginal hysterectomy for myoma and prolapse. This is the usual length of drain. The T formation is well shown.

DRAINS IN ABDOMINAL INCISION

We encountered quite a surprise in the experimental work in regard to the roentgen ray visibility of drains in the region of the abdominal incision. The tubing which showed clearly in the center of the pelvis could scarcely be identified when placed in the area of the abdominal wall (figure 12), although we knew exactly where it was. This loss of visibil-



Fig. 11. A roentgen ray film showing a drain in position in a very obese patient convalescing from vaginal hysterectomy for prolapse and myoma. This is the usual length of drain. It shows well the T formation at the lower end to prevent it slipping into the drainage tract.

ity presumably was due to the drain being too far from the film in the dorsal position. So the patient (model) was placed in the prone position and the small drain was then clearly outlined as shown in figure 13. The comparison of these two roentgenograms emphasizes the importance of bringing the particular area under search as near to the film as possible, particularly when seeking definite outlines of inconspicuous shadows. This is the reason why a large part of the filming is done with the patient in the prone position when doing gastro-intestinal work. In figures 12 and 13 the drainage tube was horizontal to the film. If the lost tube should be

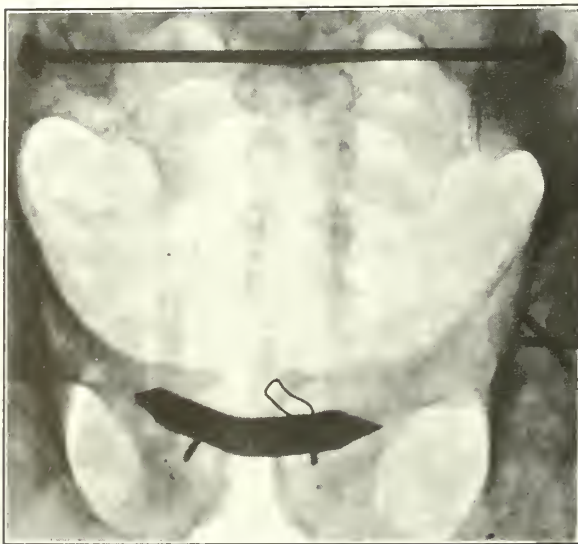


Fig. 12. Roentgen ray film showing red tube drain (Dakin size) laid in the abdominal wall of the model. The model is in dorsal position and the tube is horizontal to the film. This red rubber tube which shows well when placed in the center of the pelvis can hardly be seen here in the abdominal wall.



Fig. 13. A film showing the same arrangement as in figure 12 but with the model turned over to the prone position. In this position the drain shows well because it is brought nearer the film. Notice that there are also other differences caused by the change of position. For example, the wire loop holding the coccyx is clear cut in the film in the dorsal position but is widened and dimmed in the prone position because it is so much farther from the film.

perpendicular to the film it would appear as a small circle with fuzzy outlines in the dorsal position and clear cut outlines in the prone position.

SIZES OF RED TUBING

For purposes of pelvic drainage it is convenient to have four sizes of red tubing. As shown in figure 14 the small size (No. 1) is the common red Dakin tubing, the hole being about $\frac{1}{16}$ inch in diameter. This is the size usually preferred in draining from the cul-de-sac to the vaginal vault after hysterectomy. Sizes No. 2 and No. 3 are convenient for use in the cervical canal after extensive conization when drains are desired. No. 4 is the size ordinarily used in drainage through an abdominal incision in infected cases or in extensive pelvic endometriosis adhesions, although some operators prefer size No. 3.

SECOND PROBLEM

The second problem in connection with drains relates to preventing them from slipping out of place. What is the most practical method of keeping the drain where it belongs? For the drains used in pelvic work simple expedients will suffice. For the small red tube drain from the peritoneal cul-de-sac to the vaginal vault, used after complete hysterectomy, a substantial T is made at the lower end. This prevents the drain from slipping into the drainage tract toward the cul-de-sac. The drain is prevented from slipping out of the tract into the vagina by drawing one or two of the sutures tightly about it as the vaginal vault is being closed.

For the drain in the cervical canal, when desired after extensive conization or other repair, it is well to make a T on each end, as indicated in figure 15. The T in the uterine cavity prevents the drain from slipping out and obviates suturing for that purpose.

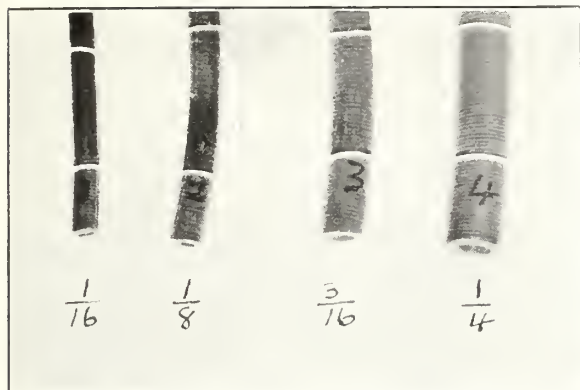


Fig. 14. A photograph showing red tubing in the four sizes of tubing ordinarily used for drainage purposes. Starting with No. 1 which is the common red Dakin tubing the sizes run about as follows: Size No. 1, $\frac{3}{16}$ inch outside diameter, order by hole $\frac{1}{16}$ and wall $\frac{1}{32}$ inch; size No. 2, $\frac{1}{4}$ inch outside, order by hole $\frac{1}{8}$ and wall $\frac{3}{64}$ inch; size No. 3, $\frac{5}{16}$ inch outside diameter, order by hole $\frac{3}{16}$ and wall $\frac{1}{16}$ inch; size No. 4, $\frac{3}{8}$ inch outside diameter, order by hole $\frac{1}{4}$ inch and wall $\frac{1}{16}$ inch.

The T in the vagina prevents the drain from slipping into the uterine cavity, which it might do if that cavity should be deep.

For the drains through an abdominal incision a safety pin may be used and gauze placed between it and the skin. The use of the safety pin to insure against the drain slipping into the abdomen should be continued as the drain is being shortened. In fact, when the drain has been considerably shortened is the time when it is most likely to slip into the tract and be overlooked and lost.

CIGARETTE DRAINS

The roentgen ray visibility of cigarette drains and Penrose drains is more difficult to attain. I was unable to find any red rubber sheeting of sufficient thinness and pliability to make the small rolled cigarette drain. When I mentioned this to Mr. Hanna of the Davol Company, with whom I had been corresponding in regard to roentgen ray visibility of tubing, he had some sheeting of special formula made and sent to me for testing. This was very thin red rubber sheeting, pliable enough for rolling into cigarette drains. Figure 16 shows that the tightly rolled cigarette drain made of this sheeting when placed in the central pelvis, gives a good shadow even with only half the usual thickness.

When used as a single layer envelope around gauze, the sheeting gives no identifying shadow (see figure 17). Hence drains of the Penrose type are not rendered roentgen ray visible by the use of this special red rubber sheeting unless several thicknesses are used or the sheeting is impregnated with a much larger percentage of chemicals opaque to roentgen ray.

I have gone no farther into rendering cigarette and Penrose drains roentgen ray visible because of lack of time and because this feature is not of special interest to me. I have come to use tube drainage practically altogether, small or large as required. If a gauze core is desired gauze is placed



Fig. 15. A roentgenogram showing a red tube drain (size 3) in position in the cervix in a patient convalescing from extensive conization of the cervix and curettage and repair of floor. There is a T formation at the upper end as well as at the lower end but at such an angle to the film that it does not show well.

inside the tubing which is itself opaque to roentgen rays.

For those who use the rolled cigarette drains, special thin red rubber sheeting would no doubt be put on the market if there were sufficient demand for it; or perhaps some is already available which escaped notice. Penrose drains are usually so large and long that there is little danger of their slipping inside or being overlooked, and roentgen ray visibility is not so necessary for them. The Penrose drain may be made of tubing instead of the thin sheeting ordinarily used to cover the core of gauze. In that case if red tubing be used the drain will be visible in a roentgenogram. This would be advisable in small or short drains which are the ones most likely to be lost.



Fig. 16. A film showing cigarette drains made of the special red rubber sheeting mentioned in the text. The drain shows well in the regular size (3 inches square and tightly rolled) and also in the half thickness beside it.

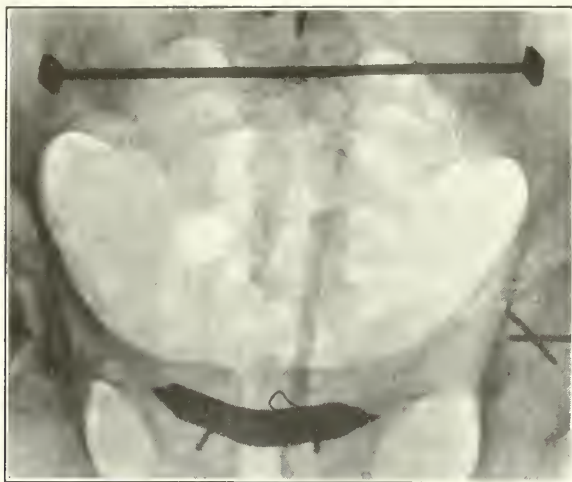


Fig. 17. Film showing tightly rolled cigarette drain contrasted with Penrose type of drain which has only a single layer of the sheeting about it. The Penrose type (made by wrapping a single layer of the special thin red sheeting about a core of gauze) does not give an appreciable roentgen ray shadow except at the upper end where the sheeting was accidentally folded in making the drain.

SUMMARY

1. Drains occasionally slip out of place and are missing when the time comes to remove them. Has the drain slipped out and been thrown away with the dressing or has it slipped inside the body? One need only glance at the records of instances of lost drains to appreciate the serious potentialities of such a situation.

2. A missing drain presents two problems; namely, first, how to determine with certainty whether or not the drain is in the body and, second, how to prevent drains from slipping out of place. In regard to the first problem, roentgen ray visibility of the drains is the only thing short of operation which will solve it. Consequently, it is advisable to use roentgen ray opaque material for drainage, if such material is available.

3. There is little literature on the roentgen ray visibility of drains. Considerable detailed information is given in an article by Schinz and Preiss¹ and also in the United States Bureau of Standards' report on rubber. Edlick² stresses the advisability of using roentgen ray opaque material for drainage. But sufficient information could not be found on the practical problem of adapting available material to our daily work so that the drains used would be roentgen ray visible.

4. Experimental work with a model pelvis showed that ordinary red rubber tubing, even of the small Dakin tube size, should be roentgen ray visible in the pelvis of the most obese patient. This was later confirmed by filming postoperative patients with such drains in position.

The amber tubing and black tubing, which are

usually used for drainage, cast no shadow in the smaller sizes and poor shadows in the larger sizes.

Ordinary red tubing is therefore preferable for drainage use. It is well to keep on hand the four sizes indicated in figure 14.

5. In regard to preventing drains from slipping out of place, simple expedients will suffice if used with judgment. In vaginal drains a substantial T formation is satisfactory. In drains through an abdominal incision, security is attained by using a safety pin continually until the drain is entirely removed. For a small superficial drainage tract where the smallest drain (Dakin tube) is used, a substantial T formation may be employed as in the vaginal drain. Of course, fastening a drain with a stitch holds it securely temporarily but further safety provision must be made when the suture is absorbed or cuts out.

6. In view of the serious results from lost drains, and the impossibility of determining if they are in the body because lacking roentgen ray visibility, it is advisable to use the roentgen ray visible red tubing for drainage instead of the black or amber tubing both of which lack dependable visibility.

903 University Club Building.

RECENT ADVANCES IN THERAPEUTICS

O. P. J. FALK, M.D.

ST. LOUIS

As we sketch briefly some of the outstanding recent advances in therapeutics, we must ever be aware that method and procedure change with further knowledge and development, as careful study of action and reaction adds mature judgment to the buoyant enthusiasm of any promising development.

THE USE OF CARBON DIOXIDE IN EARLY PNEUMONIA

Based upon the similarity between early pneumonia and lobar atelectasis, as evidenced by the elevation of the diaphragm on the affected side and by the displacement of the mediastinal structures toward the involved side, we have been employing CO₂ and oxygen mixtures, from eight to ten inhalations through a face mask every hour, for the first day or two of an attack of pneumonia. The objective is the stimulation of deep respiration and production of involuntary coughing attacks, resulting frequently in the expectoration of large quantities of viscid mucus. Not infrequently there follows an improvement in color and a feeling of well-being with drop in temperature. I have observed many abortive terminations of early pneumonic processes, probably brought about by preventing the accumulation of bronchial exudate before consolidation took place, through keeping the

1. Schinz and Preiss: The Roentgenologic Visibility of Rubber Drains, *Schweiz. med. Wchnschr.* 1:674, 1920.

2. Edlick, T. J., Jr.: The Radio-Opacity of Rubber Tubing for Drainage Purposes, *M. Times & Long Island M. J.* 63:184 (June) 1935.

Read before the American Therapeutic Society, New York, April 2, 1938, and the St. Louis Medical Society, April 26, 1938.

From the Department of Internal Medicine, St. Louis University School of Medicine.

airways open and the drainage free. If we can remove these plugs by promoting nature's method of pulmonary drainage—productive cough—we can hope to add a helpful factor to the effective specific serum therapy available today in the treatment of lobar pneumonia.

RECENT PNEUMOCOCCUS SERUM DEVELOPMENTS

The development of therapeutic rabbit sera for the treatment of the higher type pneumococcus pneumonias has opened an enormous field of potential usefulness. We are now upon the threshold of realizing a long cherished hope for a specific measure in the treatment of certain pneumonia types, like type 3, having high mortality for which we have heretofore had only routine measures of therapy. Clinical results with some of these serum types have been highly encouraging as far as they have been observed. Rabbit sera have become available in the last few months for most of the thirty-two types of pneumococcus pneumonias. These sera will frequently give an intradermal reaction which does not contraindicate their use. The conjunctival test or blood pressure reaction constitute the criterion of sensitiveness. There is an occasional thermal reaction of from 104 to 106 F. occurring from forty to sixty minutes following the injection. This reaction, which is not usually severe, does not contraindicate further use of the serum. It is absolutely necessary to determine the type of pneumococcus because serum is of no significant value except against its homologous type of organism.

OXYGEN BY NASAL CATHETER

In pneumonia the use of oxygen by nasal catheter has enhanced the availability of oxygen therapy both in the hospital and in the home. The simplicity of its use, the inexpensiveness of its employment both as to the apparatus and the amount of oxygen required, as well as the relative ease of nursing attending its use has deservedly popularized this splendid method. We have used it in pneumonia (as well as in heart disease and septicemia) almost to the exclusion of the tent method in the average case where oxygen concentration above 35 per cent or the air conditioning of a tent is not imperative. A 35 per cent concentration of oxygen in the alveolar air may be obtained by means of a nasal tube inhalator, or a 10 or 12 size nasal catheter with a calibrated gauge to fit on a high pressure tank at 4 or 5 liters per minute. The oxygen must be passed through at least three inches of water in a water bottle to prevent drying the mucous membrane. The terminal inch of the catheter should be perforated with four holes to distribute the stream of oxygen. It should be inserted to the base of the uvula (average 4 inches) and changed to the alternate nostril every twelve hours.

THE THERAPEUTICS OF BENZEDRINE SULPHATE

This drug has been the subject of extensive clinical and pharmacological investigation since 1930

but in the last year our ideas of its uses, limitations and contraindications have begun to crystallize. Benzyl methyl carbinamine has a stimulating effect upon the central nervous system which has made the drug of value in the treatment of various neurological conditions. The effect is prolonged, lasting from two to five hours. Its use has achieved established recognition in the treatment of narcolepsy, for pathologic drowsiness and cataplexy, and in the symptomatic relief of the lassitude, muscle rigidity and tremor of postencephalitic Parkinsonism, especially when combined with hyoscine, stramonium or atropine.

Benzedrine in larger doses, 10 to 30 mg. per os or hypodermically, relaxes the smooth muscle of the gastro-intestinal tract and relaxes spasm whether functional, reflex or associated with organic disease. This relaxation usually occurs within a few minutes and has been found to be of value in roentgenologic examinations, especially of the colon. I have found the drug with ephedrine sulphate effective in the treatment of postural hypotension in a series of cases recently reported at St. John's Hospital Clinical Conference.¹

The rather routine way in which a drug with the properties of benzedrine is apt to be employed with patients complaining of lassitude, exhaustion, fatigability, drowsiness and asthenia is to be discouraged generally although its judicious use, after exhaustive investigation has failed to reveal any specific cause for such symptoms, may be justified under careful supervision. However, its potential harmful effects such as habit formation and cardiac overstimulation, raising of blood pressure, a possible craving for the drug, mental and physical overstimulation and serious interference with sleep must be borne in mind. Because of the associated loss of appetite the drug has ill advisedly been used to reduce weight.

The effects of benzedrine, whether desirable or undesirable, are usually apparent with the first few doses (and those not over 10 mg.), so that it is not necessary to carry out a prolonged period of trial and observation before discontinuance of the drug is justified. Following discontinuance, mild sedatives will usually control any undesirable symptoms.

CLINICAL RECOGNITION AND TREATMENT OF SUBCLINICAL TETANY

The clinical syndrome of tetany is considered to depend upon three major factors: the degree of immobilization of the diffusible fraction of the calcium ion, the presence of alkalosis with increase of CO₂ combining power (as in loss of HCl from the stomach in protracted vomiting), or the presence of tissue anoxemia. The spasms occurring may consist of localized tetanoid contractions of the hands and feet, spasms of the esophagus, bladder, ureter and other hollow visceral organs, or they may be even convulsive in nature.

In hypoparathyroidism there a reduction of serum

calcium, an increase in serum phosphorus and an increase in CO_2 combining power. When a state of hypocalcemia exists (probably with diminished mobilization of the diffusible fraction of the calcium ion) and alkalosis is present, the degree of tetany depends upon the threshold of the particular individual to the stimulus he receives.

The lesser degrees of tetany may be obscure and result from a physiological or chemical disturbance producing localized tissue alkalosis or anoxemia, resulting in tetanoid contractions or peripheral nerve stimulation which differ from the recognized hypoparathyroid type in that there is no lowering of the serum calcium, as recently pointed out by Kerr² who reproduced the suggestive tetanoid symptoms, or brought on carpopedal spasm or a positive Chvostek in suspected cases by prolonged voluntary hyperventilation. Should the symptoms of a localized spasm thus produced or enhanced be relieved by inhalation of CO_2 oxygen mixture, holding the breath or rebreathing into a paper bag, it is probable that a temporarily induced alkalosis is playing a significant role in the production of these symptoms and that control of the symptom complex may be affected by placing the patient on a modified acid ash diet, giving ammonium chloride, or hydrochloric acid and increasing the calcium intake.

For the test described these patients must be relaxed, at ease and cooperative. Those cases having other important factors operative in the production of their neuroses, or with superimposed or coincident organic disease, will naturally not respond to anti-alkalosis management.

TREATMENT OF HYPOPARATHYROID TETANY

A new preparation, dihydrotachysterol, has made it possible for the first time to obtain and maintain normal calcium level and control symptoms of hypoparathyroid tetany adequately. It is probably advisable to administer small amounts of calcium along with the drug. Since its introduction by Holtz,³ considerable literature has appeared on its action and indications. The majority of published reports deal with its use in the acute, chronic and latent forms of postoperative tetany. In the treatment of the acute attacks dihydrotachysterol has proved more effective than injections of calcium salts and parathyroid extract because of its more prolonged action so that, after the blood calcium level has been restored to normal, frequent administration is unnecessary and small doses suffice to prevent recurrences. Moreover, this new agent is given by mouth while parathyroid extract must be injected and even then seems to lose its effectiveness after a time. The blood calcium level should be kept at the lower range of normal, that is between 9 and 10 mg. per 100 cc.

The length of time that treatment should be continued will depend upon the time required to restore a normal blood calcium level and to cause the disappearance of the symptoms. After this has

been accomplished the patient should be guarded against recurrences by examinations of the blood calcium every few months.

INTRAVENOUS USE OF MORPHINE SULPHATE

Because of the prompt action of intravenous morphine, its analgesic effect is produced almost instantly in contrast to the distressing delay of the traditional subcutaneous method. I have found the intravenous use to be of inestimable value for the prompt relief of the intense agony of a coronary occlusion, incidentally lessening the associated shock and quite possibly relaxing regional arteriolar spasm. Morphine intravenously is equally efficacious in gall stone and ureteral colic and for unusually severe attacks of acute left ventricular failure (cardiac asthma). I have not used it for ordinary dyspnea in cardiac decompensation because prompt relief is usually obtainable by adequate morphine subcutaneously along with oxygen where necessary.

A small percentage of patients complain of dizziness, palpitation or a feeling of warmth, but I have never encountered any alarming subjective or objective reactions. Vomiting follows intravenous injection less frequently than it does subcutaneous injection, probably because the vomiting center is depressed more rapidly by the intravenous route.

The technic employed consists of dissolving $\frac{1}{4}$ grain in 2 cc. of sterile water from an ampoule and injecting one quarter of the solution slowly and waiting thirty seconds to observe any undue reaction or evidence of idiosyncrasy. Then the remainder is slowly injected if necessary. Betlach⁴ has advocated its use preliminary to bronchoscopy and gastroscopy for which it has been used six hundred times at the Mayo Clinic during the last year.

USE OF SULFANILAMIDE

Since the initial report of Long and Bliss⁵ in January, 1937, in which they confirmed the *in vitro* observations of Colebrook and Kenny⁶ and likewise in nineteen cases of streptococcus infections, amazing results have been obtained with this new dye, chiefly in hemolytic streptococcal, meningococcal and gonococcal infections. Even blood stream infections have yielded at a time when successive disappointments with a score of substances had led most observers to conclude that disinfection of the blood stream in septicemia was by nature a complete impossibility.

The great volume of excellent literature on sulfanilamide and its related compounds the last year is an indication of the amount of careful investigation and control that is being done in the attempt to attain a sound basis for clinical application. Marshall⁷ and his collaborators, studying the distribution of sulfanilamide in the animal body, found that its behavior in this respect is similar to that of ethyl alcohol and urea; it rapidly diffuses to all tissues and is found in quantities roughly proportional to the water content. On high dosage the

drug was present in amounts varying from 7.3 mg. per 100 cc. in fat and to 20.7 mg. in the liver.

Because of unwarranted enthusiasm, sulfanilamide has been tried in nearly every disease known to man. During the last year data has begun to accumulate revealing for the most part the distinct therapeutic limitations of the drug, and occasionally an unsuspected curative effect.

To summarize: Sulfanilamide has been demonstrated to be effective in the treatment of the following conditions, particularly when given early to prevent complications: (1) erysipelas, post-operative mastoid erysipelas; (2) meningitis (meningococcic); (3) type 3 pneumococcus meningitis; (4) streptococcus meningitis; (5) streptococcus septicemia; (6) streptococcic upper respiratory infections (mastoid, throat and bronchial pneumonia); (7) genito-urinary infections, pyelitis (colon or paracolon B as well as streptococcus type), and (8) puerperal sepsis.

Efficacy is questionable in: (1) typhoid and paratyphoid; (2) gas gangrene; (3) malaria; (4) gonorrhea, and (5) undulant fever.

The following are not affected by sulfanilamide: poliomyelitis, influenza, encephalitis, chorea, rheumatic fever, tularemia, staphylococcus infections, ulcerative colitis, peritonitis (unless blood borne), pneumococcus infections except type 3 pneumococcus meningitis and streptococcus viridans endocarditis.

Sulfanilamide should be given in a dosage of from 4.5 to 6 gm. per day in the adult. A practical procedure is to begin with half this amount for the first dose and the remainder in divided dosage through the day. Thereafter from 4.5 to 6 gm. should be given daily in six divided doses. One should attempt to maintain a blood concentration of around 10 mg. per cent of sulfanilamide.

Cyanosis from methemoglobinemia can usually be prevented by giving two grains of methylene blue by mouth from five to six times daily with each dose of sulfanilamide.

Additional precautions are to check the red count, hemoglobin and white count every second to third day during the time the patient is receiving the drug in order to detect any early tendency toward the hemolytic anemia or agranulocytosis that sometimes occurs as a toxic effect of the drug.

The usual complications of sulfanilamide therapy are dizziness, headache and lassitude. These disturbances are usually mild in character and do not constitute a serious handicap to the use of the drug. Urticaria and skin rashes occur in less than 3 per cent of the cases in which the drug is used and are reported to be found more frequently if the patient has been exposed to sunlight. Cases of toxic jaundice resulting from the use of sulfanilamide have been reported but it is difficult to say whether this complication may not be due to the infection itself rather than to the drug. An important complication, and one that is not infrequently misinterpreted as representing a continuation or

recurrence of the original infection, is the febrile reaction that may occur several days after the institution of sulfanilamide therapy. Should signs of acidosis appear the carbon dioxide combining power of the plasma should be determined and if found below normal treated by the use of Hartmann's sodium lactate solution intravenously. This complication can usually be prevented by giving the drug with some alkaline preparation such as sodium bicarbonate, citrocarbonate or citrolactate solution. Sulphates should be avoided during sulfanilamide administration.

An important fact to bear in mind is that nephritis or any form of renal decompensation is apt to present a serious handicap to the use of the drug. As sulfanilamide is excreted almost entirely in the urine, the presence of renal decompensation may prevent the elimination of the drug and thereby result in a serious overconcentration in the blood stream.

NEOPRONTOSIL AND SULFAPYRIDINE

Among the latest compounds of sulfanilamide which have achieved therapeutic significance during the last year are neoprontosil and sulfapyridine. Present day investigation would seem to indicate that neoprontosil is as active, in equal dosage, as sulfanilamide although only a portion of neoprontosil can be reduced to sulfanilamide in the body suggesting that the former is capable of producing some chemotherapeutic action aside from that produced by sulfanilamide proper. Neoprontosil seems to be less toxic, grain for grain, than sulfanilamide. I have used neoprontosil by mouth routinely for bronchopneumonia in adults during the last winter, where sputum examination revealed streptococci predominant over other bacterial forms. Sputum examinations were conducted daily during the course of these infections, as well as careful clinical examinations, in order to exclude the possibility of pneumococcus lobar pneumonia being obscured in the early stages of the process by atypical physical signs or sputum findings. The drug has also been used in cases of streptococcus throat infections occurring on our hospital service and it seemed evident that there was less toxic reaction than we have been accustomed to encounter with sulfanilamide administration. We have seen no instance of hemolytic anemia or leukopenia follow the use of neoprontosil, in the type of pulmonary and throat infections described. We have had no experience with its use in ulcerative colitis except in two cases in which there did not seem to be any detectable response to its use. Bannick, Brown and Foster⁸ have reported the effectiveness of this drug in the treatment of chronic ulcerative colitis, stating that "neoprontosil possesses characteristics that make it the sulfanilamide drug of choice in the treatment of such conditions as chronic ulcerative colitis where prolonged therapy is indicated and severe toxic reactions may have serious consequences." Dr. A. M. Snell states that neoprontosil,

in his experience, has been considerably less toxic and more effective in the treatment of infectious processes involving the digestive and biliary tracts. Because of its generally less toxic manifestations, neoprontosil is sometimes well tolerated and may be tried in cases which have proved intolerant to sulfanilamide. We have encountered a few mild toxic effects somewhat similar to sulfanilamide reactions such as headache, dizziness, lassitude, nausea and vomiting. I have encountered occasional cyanosis of a very minor degree. Mild fever occurs occasionally following the use of the drug and acidosis, jaundice, hemolytic anemia and leukopenia although rare must be watched for. Neoprontosil imparts a reddish tint to the urine and even to the skin, especially in blonde types, particularly when it is given parenterally. The oral dose of the drug ranges from 0.6 to 1 gram (10 to 15 grains) every four to six hours for a total of from four to six grams a day, depending upon circumstances such as the severity of the infection, the age and weight of the patient, and tolerance to the drug.

Sulfapyridine, which has recently been made available for clinical use, exerts an apparent bacteriostatic effect on the pneumococcus and is justifiably indicated in lobar pneumonia when the type of the pneumococcus cannot be determined, or in cases where specific serum is not available. Present indications would seem to justify a trial in type III pneumococcus pneumonias, at least for the first twenty-four to thirty-six hours. Should the patient fail to show definite clinical improvement in the form of definite temperature drop after that length of time, it is probable that the immunity mechanism may be impaired or impotent and that adequate immunologic response has not occurred and therefore specific serum should be used promptly. Since it has been observed that the use of this drug may make it impossible to determine the specific type of pneumococcus involved, it is important that the sputum be typed early before the drug is used, if a specimen can be obtained.

Sulfapyridine is given in the same dosage as sulfanilamide, 4 to 6 grams a day. Where it is not tolerated because of nausea or vomiting the sodium salt may be given in a 2 per cent solution by protocolysis, or 2 grams of the granular substance may be dissolved in 1000 cc. of 5 per cent glucose in saline and given intravenously. The toxic manifestations of sulfapyridine are similar to those seen with the related drugs except that nausea and vomiting are more frequent. Rash, fever, cyanosis, lassitude, headache and dizziness may also be observed. As with the related drugs, methylene blue may be used to control cyanosis. Moderate anemia occurs but less frequently than with sulfanilamide. Acute hemolytic anemia and also agranulocytosis have been reported and must be watched for by frequent blood counts. Whitby⁹ advises that the dosage begin with 2 grams every four hours for two doses, followed by 1 gram every four hours during the remainder of the treatment, which

should continue for forty-eight hours after the temperature drops.

In the present state of our knowledge it would appear that sulfapyridine therapy is indicated where the pneumonia cannot be typed or specific serum is not available. A combination of specific type serum with sulfapyridine therapy is indicated in certain pneumonias such as the type III cases mentioned previously; in the presence of pneumococcus bacteremia in other types; when the treatment is begun after the third day of the illness or with a very sick patient past middle life. In the combination therapy, should abortive crisis occur, the drug may be stopped thirty-six hours after the beginning of treatment, otherwise it should be given for forty-eight hours after the drop in temperature. At the present time we feel that the drug should be used under careful hospital supervision so that any undue reaction may be promptly controlled and blood counts checked regularly.

The proper procedure may be outlined as follows:

- (1) Careful bacteriologic control (typing of sputum and blood culture) before starting treatment.
- (2) Complete blood counts, urinalysis and non-protein nitrogen determination at the beginning of therapy.
- (3) Ruling out contraindications such as advanced hepatic and renal disease.
- (4) Dosage of 2 grams every four hours for two doses, then 1 gram every four hours for the remainder of the treatment.
- (5) Daily red and white counts during the course of treatment.

In concluding, a plea for conservatism and caution in the use of the sulfanilamide related compounds would seem to be in order.

Humboldt Building.

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The practice of cooling public buildings to 80 F. or less in hot weather appears to be a distinct menace to the health of susceptible persons who expose themselves to contrasts in temperature, *The Journal of the American Medical Association* for April 29 asserts.

"In warm summer weather," *The Journal* says, "an indoor temperature of 80 F., or even 85 F., with low humidity is comfortable and desirable, from the standpoint of health, because the human organism becomes adapted to heat and cannot stand sudden drops in temperature, especially when the body surfaces are wet with perspiration."

Thermometers for recording room temperatures usually should be placed 36 inches above the floor and at least 3 feet away from the exposed walls. In rooms for the aged it is preferable to record the temperature at knee-height level, 18 inches above the floor.

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MAY, 1939

EDITORIALS

CYRUS E. BURFORD, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL
ASSOCIATION, 1939-1940

Dr. Cyrus E. Burford, St. Louis, was elected President-Elect of the Missouri State Medical Association by the House of Delegates at the Excelsior Springs Session, April 10, 11 and 12. Dr. Burford will serve as President-Elect during this year and will be installed as President at the Joplin Session in 1940.

Dr. Burford received his preliminary education at Central College, Fayette, obtaining a Ph.B. degree. An honorary degree of LL.D. was later bestowed on him by that school. He has maintained an interest in the school and is at present chairman of the Board of Curators of Central College.

In 1902 Dr. Burford received his medical degree, the year following the union of the Marion-Sims College of Medicine and the Beaumont Hospital Medical College to form the Marion-Sims-Beaumont Hospital Medical College and the year before the school became the St. Louis University School of Medicine. He served his internship at the St. Louis City Hospital in 1902 and 1903.

He is a member of the Phi Beta Pi and Alpha Omega Alpha medical fraternities and the Sigma Alpha Epsilon fraternity.

Dr. Burford has taken a prominent place in the practice of medicine and in the organizations of the profession. He has served the St. Louis Medical Society as secretary, councilor, member of various committees, delegate to the Annual Sessions and in 1920 as president. He is a past president of the St. Louis Surgical Society and the St. Louis Urological Society and is president of the Alumni Association of St. Louis University School of Medicine. He is a Fellow of the American Medical Association, the American College of Surgeons, the American Association of Genito-Urinary Surgeons and the American Urological Association and a member of the Southern Surgical Association. During the World War he was an efficient military officer.

Dr. Burford was alternate delegate to the Ameri-



CYRUS E. BURFORD, M.D.

can Medical Association for two terms, from 1935 to 1939.

He holds the Chair of Urology of the St. Louis University School of Medicine and is on the urological staffs of Firmin Desloge, St. Mary's, St. Luke's, Missouri Baptist, Jewish, Frisco and Bethesda hospitals.

Dr. Burford has proven his efficiency as a practitioner of medicine and as a leader in its organizations and has the respect and esteem of his colleagues. The Association is fortunate in having Dr. Burford as its President-elect.

THE EXCELSIOR SPRINGS SESSION

The 82nd Annual Session of the Missouri State Medical Association which met in Excelsior Springs April 10, 11 and 12, was an outstanding meeting from several standpoints. The program was one of the best ever presented at an Annual Session of our Association and one of which any Association could be proud. The business of the House of Delegates was conducted with alacrity and harmony and attendance at the Session was large in spite of the meeting of the American Medical Association in St. Louis this year.

Dr. B. W. Hays, Jackson, President, was unable to attend the Session because of illness and Dr. C. A. W. Zimmermann, Cape Girardeau, Vice President, presided. Dr. James R. McVay, Kansas City, was installed as President at the Wednesday afternoon session of the House of Delegates and will pre-

side at the 1940 Session which will convene in Joplin.

Dr. Cyrus E. Burford, St. Louis, was elected President-Elect and will be installed as President at the Joplin Session and preside at the Session in 1941. Dr. James R. McVay, Kansas City, and Dr. R. Emmet Kane, St. Louis, were elected Delegates to the American Medical Association. Dr. C. A. W. Zimmermann, Cape Girardeau, and Dr. Joseph C. Peden, St. Louis, were elected alternates. Dr. A. R. McComas, Sturgeon, and Dr. H. L. Kerr, Crane, are the other delegates who will serve at the 1939 Session of the American Medical Association. Vice Presidents elected are Drs. E. S. Smith, Kirksville; Guy D. Callaway, Springfield, and J. E. Baird, Excelsior Springs.

Dr. Ralph L. Thompson, St. Louis, was appointed Treasurer and Mr. E. H. Bartelsmeyer, St. Louis, was elected Executive Secretary by the Council. Dr. Curtis H. Lohr, St. Louis, was elected Chairman of the Council and Dr. E. P. Heller, Kansas City, Vice Chairman. Councilors of the even numbered districts, whose terms expired this year, were respectively reelected by delegates present from the various districts at meetings on Wednesday morning.

All scientific sessions were unusually well attended as were the round table luncheon meetings on Tuesday and Wednesday and the Maternal Welfare Dinner on Monday evening. The addresses of all speakers were without exception excellent presentations and were enthusiastically received by the members.

The Clay County Medical Society proved itself an excellent host as it had done when the Session convened there in 1935.

The following resolution regarding the Wagner Bill was adopted:

WHEREAS, There is pending before the United States Congress a bill amending the Social Security Act which "provides for the general welfare by enabling the several states to make more adequate provision for public health prevention and control of disease, maternal and child health services, construction and maintenance of hospitals and needed health centers, care of the sick, disability insurance and training of personnel and for other purposes," and

WHEREAS, This bill definitely establishes great concentration of power and authority in the federal government over matters that are the direct concern of the individual citizen and of the individual states of the Union, and

WHEREAS, This bill provides for the expenditure of enormous sums of money to be provided by taxpayers already overburdened with known and hidden taxes, and

WHEREAS, This bill opens wide the door to a form of state socialism which is destructive of our present concept of representative democracy, and

WHEREAS, This bill represents the existence of a crying need for federal aid for and control of medical and hospital life in America which does not in truth and in fact exist, therefore be it

Resolved, By the Missouri State Medical Association in convention assembled that we urge our representatives in Congress to work for the defeat of Senate Bill 1620, and be it further

Resolved, That each component Society of this Association be apprised of this act, and be it further

Resolved, That a copy of these resolutions be sent to the two senators from Missouri and to each of our representatives in Congress accompanied by a request for information as to the position they will take when this bill comes up for consideration and action.

A resolution regarding the Army Medical Library and Museum Building was adopted as follows:

WHEREAS, The Seventy-Fifth Congress passed an Act authorizing the Secretary of War to construct a building to replace the present Army Medical Library and Museum Building and the President approved the Act on June 14, 1938, and

WHEREAS, This Library is commonly referred to as the Army Medical Library, but it is in every way essentially a library for the medical profession and, through the profession, a library for the people. It is an "Army" library only in the sense that it has been built up to its present preeminence among the medical libraries of the world through the interest and energy of successive Surgeon Generals and librarians and is administered by the Surgeon General of the Army as best he can with the resources provided for that purpose by Congress, and

WHEREAS, It is unfortunate that such a request was not submitted in connection with the regular annual estimates of the expenses of the War Department for the fiscal year. The bill providing money to cover such expenses has already passed both Houses of Congress and it is therefore too late to get into that bill an item providing funds for the construction and equipment of a new library building. It may be possible, however, to procure the insertion of such an item into some deficiency appropriation bill or some other appropriation bill during the present session of Congress. If that is not done, the making of plans looking toward the construction of a new building will be delayed by as much as a year. Active and forceful work should therefore be inaugurated at once, and

WHEREAS, That Act carried with it, however, no appropriation, the next step, therefore, is for the Secretary of War to submit to Congress a request for the necessary appropriation, approved by the Director of the Budget. Therefore be it

Resolved, That the House of Delegates of the Missouri State Medical Association hereby voice a strong demand for the construction of a new building for the Army Medical Library and Museum and petition the respective members of Congress from Missouri to support an adequate appropriation, and be it further

Resolved, That the Secretary be instructed to forward copies of this resolution to our respective members of our National Congress.

All standing committees were increased to five members unless otherwise specified in the By-Laws. Dr. James R. McVay, Kansas City, following his installation as President, made the following appointments: Scientific Work, Drs. F. E. Walton, St. Louis, Dudley S. Conley, Columbia, and Ralph R. Coffey, Kansas City; Postgraduate Course, Drs. C. H. Neilson, St. Louis, W. Roger Moore, St. Joseph, and Ralph E. Duncan, Kansas City; Public Policy, Drs. James Stewart, Jefferson City, Urban J. Busiek, Springfield, and Donald M. Dowell, Chillicothe; Defense, Drs. Charles E. Hyndman, St. Louis, L. P. Forgrave, St. Joseph, and M. J. Owens, Kansas City; Medical Education and Hospitals, Drs. L. W. Dean, St. Louis, M. H. Black, Joplin, and Dudley S. Conley, Columbia; Cancer, Drs. Titus S. Lapp, Ful-

ton, Edwin C. Ernst, St. Louis, and E. Kip Robinson, Kansas City; Medical Economics, Drs. Ira H. Lockwood, Kansas City, C. A. W. Zimmermann, Cape Girardeau, and W. F. Francka, Hannibal; Mental Health, Drs. F. A. Carmichael and Ralf Hanks, St. Joseph; Maternal Welfare, Drs. Joseph D. James, Springfield, Borden S. Veeder, St. Louis, and John Aull, Kansas City; McAlester Foundation, Drs. E. Lee Miller and John S. Knight, Kansas City, and Howard A. Rusk, St. Louis; Constitution and By-Laws, Drs. Herbert S. Langsdorf, St. Louis, and B. Landis Elliott and Herbert L. Mantz, Kansas City; Fractures, Drs. M. L. Klinefelter, St. Louis, Frank D. Dickson, Kansas City, William J. Stewart, Columbia, H. K. Wallace, St. Joseph, and James D. Horton, Springfield; Conservation of Eyesight, Drs. Winfred L. Post, Joplin, and Robert S. Minton, St. Joseph; Control of Venereal Disease, Drs. W. S. Sewell, Springfield, and R. L. Sutton, Kansas City.

Special committees were reappointed with Dr. Frank L. Feierabend, Kansas City, on the Committee on Physical Therapy.

A Committee on Tuberculosis was appointed as follows: Drs. E. E. Glenn, Springfield, Chairman; George D. Kettelkamp, Koch, and R. H. Runde, Mount Vernon.

The following Committee on Industrial Health was appointed: Drs. E. C. Funsch, St. Louis, Chairman; J. E. Castles, Kansas City; W. M. Kinney, Joplin; H. I. Spector, St. Louis, and G. T. Bloomer, St. Joseph.

ST. LOUIS SESSION OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association will convene in St. Louis May 15 to 19 for the Ninetieth Annual Session. This is the sixth time the American Medical Association has met in St. Louis, the last St. Louis Session being in 1922. Most of the section meetings and scientific assemblies, the general headquarters, scientific exhibit, registration bureau, technical exhibits, information bureau and branch postoffice will be in the Municipal Auditorium. A few of the sections will meet at Hotel Jefferson and Hotel DeSoto. The House of Delegates will convene in the Ball Room of the Hotel Statler.

The first session of the House of Delegates will convene at 10 a. m. on May 15. Delegates from the Missouri State Medical Association will be Dr. A. R. McComas, Sturgeon; Dr. H. L. Kerr, Crane; Dr. James R. McVay, Kansas City, and Dr. R. Emmet Kane, St. Louis. Alternate delegates are Dr. Frank R. Teachenor, Kansas City; Dr. W. F. Francka, Hannibal; Dr. C. A. W. Zimmermann, Cape Girardeau, and Dr. Joseph C. Peden, St. Louis.

The Scientific Assembly will open with the general meeting on Tuesday, May 15, at 8 p. m. in the Opera House of the Municipal Auditorium. The sections will meet on Wednesday, Thursday and Friday.

Dr. Irvin Abell, Louisville, is President of the Association and Dr. Rock Sleyster, Wauwatosa, Wisconsin, President-Elect, will be installed as President at the Opening General Meeting on Tuesday evening. Dr. James R. McVay, Kansas City, President of the Missouri State Medical Association, and Dr. Alphonse McMahon, St. Louis, President of the St. Louis Medical Society, the host society, will appear on the program Tuesday evening welcoming the American Medical Association to St. Louis.

A dinner and entertainment has been arranged for members of the House of Delegates and officers of the Association for Monday at 6:45 p. m. in the Ball Room of Hotel Statler. A luncheon for the officers and members of the House of Delegates will be given Tuesday noon. The President of the Association will be honored with a reception and ball on Thursday evening at 8 o'clock at the Hotel Jefferson. Many alumni and group dinners will be announced in the daily bulletin.

On Monday at 2 p. m. a program by St. Louis physicians will be presented. Appearing on this program will be Drs. Alphonse McMahon, G. O. Broun, William T. Coughlin, M. F. Arbuckle and Evarts A. Graham, L. D. Thompson, Joseph Edwards and E. L. Hoagland, James Barrett Brown, and L. R. Sante.

A third symposium on Health Problems in Education, under the sponsorship of the joint committee on health problems in education of the National Education Association and the American Medical Association, together with the Sections on Pediatrics, Preventive and Industrial Medicine and Public Health, Ophthalmology, and Laryngology, Otology and Rhinology of the American Medical Association will be held on May 16 at 2 p. m. Appearing on this program are Drs. J. H. Humphrey, St. Louis, and T. R. Meyer, Clayton.

Dr. Robert E. Schlueter, St. Louis, is chairman of the local committee on arrangements. Dr. Alphonse McMahon is vice chairman, Dr. James L. Mudd, secretary, and Dr. Percy H. Swahlen, treasurer of the committee. Rev. Alphonse M. Schwitalla and Dr. Philip A. Shaffer are honorary vice chairmen. An advisory committee is composed of Drs. Willard Bartlett, Louis H. Behrens, Louis C. Boislinaire, M. B. Clopton, Max A. Goldstein, E. J. Goodwin, W. W. Graves, Joseph Grindon, Herman A. Hanser, Bransford Lewis, Charles H. Neilson, Elsworth Smith and Meyer Wiener. Dr. Llewellyn Sale is chairman of the subcommittee on sections and section work and chairmen of the subcommittees on sections are Drs. Augustus P. Munsch, Arthur O. Fisher, S. A. Weintraub, M. Hayward Post, James B. Costen, Julius A. Rossen, Lee Pettit Gay, Downey L. Harris, Hillel Unterberg, G. V. Stryker, Joseph F. Bredeck, D. K. Rose, J. Albert Key, Joseph W. Larimore, L. R. Sante and A. J. Kotkis.

Other subcommittees and chairmen are: Registration, Dr. Henry P. Thym; fellowship, Dr. Lee D.

Cady; technical exhibits, Dr. E. P. Buddy; scientific exhibit, Dr. James B. Brown; hotels, Dr. Neil S. Moore; printing, Dr. C. H. Eyermann; badges, Dr. F. C. E. Kuhlmann; publicity, Dr. Phelps G. Hurford; finance, Dr. Curtis H. Lohr; women physicians, Dr. Emma Phelan; clinics, Dr. Frederick A. Jostes; transportation, Dr. Robert F. Hyland; entertainment, Dr. R. Emmet Kane; general meeting, Dr. Carl F. Vohs; President's Reception, Dr. Cyrus E. Burford; foreign guests, Dr. Walter Baumgarten; alumni and fraternity reunions, Dr. Theodore P. Brookes; golf, Dr. Grayson Carroll.

AMERICAN MEDICAL GOLFING ASSOCIATION

On Monday, May 15, the first day of the American Medical Association Session, the twenty-fifth annual tournament of the American Medical Golfing Association will be held at the Norwood Hills Country Club. There are two eighteen hole courses which will be at the disposal of from 250 to 300 physicians participating in the tournament. Members may tee off from 7:30 a. m. to 2:30 p. m. and may play either or both courses. Prizes will be awarded for both the thirty-six and eighteen hole players. A banquet at 7:30 p. m. will conclude the day at which time thirteen trophies and fifty prizes will be awarded.

Each player is required to bring a written statement from his club of his handicap and the prizes will be awarded according to this handicap so that good and poor players alike will have opportunity to win. Membership can be obtained on the day of the tournament at the golf club or by writing the Executive Secretary, Mr. William Burns, 2020 Olds Tower, Lansing, Michigan, in advance of the meeting. There is only one membership fee which entitles the physician to a life membership.

Dr. E. S. Edgerton, Wichita, Kansas, is president. Dr. Fred W. Bailey, St. Louis, is a past president and is the only one to have won a trophy three times in succession and therefore have it remain in his possession.

Dr. Grayson Carroll is chairman of the local committee with Drs. C. E. Eimer, Ross A. Woolsey and Fred W. Bailey as members. The prize committee consists of Drs. Leo Bartels, chairman, Guy Simpson, Maxwell Fineberg, James M. Macnish, George H. Koenig, Joseph Davie, Curtis A. Meyer and B. D. Coughlin. The transportation committee is Drs. Willard Bartlett, Jr., J. Lewis Hutton, V. Visscher Wood and William D. Black. The score committee is Drs. C. M. Charles and Robert Bartlett and the reception committee Drs. Charles P. Martin, chairman, Robert C. McElvain, Leo J. Reilly, Otto J. Wilhelmi and Simon A. Levey.

COMMITTEE ON MENTAL HEALTH

In 1934 the Missouri State Medical Association gave emphasis to the medical, social and economic

importance of mental health by creating a standing committee known as the Committee on Mental Health.

The principal function of this Committee has been to incite the interest of the general medical profession in mental health, also to endeavor to inform physicians and laymen on ways and means of preventing mental ill health. Physicians have been much interested in the prevention and better treatment of the physical ills of man. So much has been done along this line that it is estimated that in the last 300 years the average longevity of man has increased from 8 to 59 years. An equal interest has not been taken in the subject of mental ill health. Great strides have been made in the care and improved hospitalization of persons suffering from mental ill health, but up to twenty-five years ago practically nothing in the way of improvement had been offered in the treatment of mental ill health although better hospital facilities, better nursing, better food and better hygienic conditions did tend to promote recovery of patients suffering from mental ill health.

The first real advancement was the intraspinal injection of salvarsanized serum, the treatment known as the Swift-Ellis treatment for paresis and other forms of cerebrospinal syphilis. This treatment offered hope for many patients who before its introduction had had no hope. The next step was the discovery that fever therapy was useful in paresis and cerebrospinal syphilis, then the discovery of insulin and metrazol.

One of the basic causes of mental ill health is nutritional deficiency. By promoting a better metabolism, insulin has helped solve this problem. Insulin and metrazol have been proven of great value in the treatment of a form of mental ill health which previously had responded to no form of treatment, schizophrenia. Insulin has been proven to be of great value in the treatment of alcoholic psychoses. Metrazol as a treatment for mental depressions, especially those occurring in the involutional period of life, can be classed almost as a specific.

The Committee on Mental Health has undertaken to emphasize to the profession the value of these therapeutic measures and also to emphasize that the earlier treatment is begun after the onset of a psychosis the shorter the period of treatment will be and the greater the prospect of recovery. The Committee has also undertaken to emphasize that mental ill health can be prevented. There are two fundamental causes of mental ill health to which we must give recognition. These causes are brain deficiency and nutritional deficiency. The so-called "problem child," a term which covers a multitude of types, suffers from brain deficiency and nutritional deficiency and is a potential psychotic. These children must be taught a proper philosophy of living. They must be aided to become properly socialized. They must be trained to meet properly the realities of living. Their brains must be pro-

tected from stress and strain. Their nutritional defects must, insofar as possible, be corrected.

All neurotic persons are potentially psychotic. They are suffering from brain defects and nutritional defects. They also can be restored to normal by correcting the nutritional defects. Small doses of insulin with or without glucose are often helpful in the treatment of neuroses and neuropsychoses.

Mental ill health, or the insanity of the past, can be cured by proper care and treatment. Mental ill health can be prevented by the intelligent physician aided by the teacher and the parent. Much responsibility rests upon the family physician who primarily contacts the patient or the problem child.

NEWS NOTES

Appearing on the program of the meeting of the St. Louis Surgical Society on April 19 were Drs. Robert Elman, Evarts A. Graham, Brian Blades, Peter Heinbecker, J. Albert Key and John F. Patton, St. Louis.

Dr. J. Archer O'Reilly, St. Louis, was reelected president of the Missouri Society for Crippled Children at the annual meeting held in St. Louis April 21 and 22. Dr. Frank D. Dickson, Kansas City, was elected a vice president.

Dr. Horton Casparis, Nashville, Tennessee, Professor of Pediatrics, Vanderbilt University School of Medicine, was the guest of the Trudeau Club of St. Louis on April 18 and spoke on "The Physicians' Responsibility in the Tuberculosis Control Program."

The Lee Hospital, Fayette, recently opened a new ground floor portion. The addition houses a spacious reception room, three private offices for physicians, two treatment rooms, an ambulance entrance and a laboratory. A new elevator was installed and an interoffice extension telephone system. The new portion occupies an entire building formerly used as a store. The building was fully remodeled.

The College of Chest Physicians will hold a scientific meeting at the Chase Hotel, St. Louis, on May 14 at 2:00 p. m. to which the medical profession is invited. The program will include: "Bronchiogenic Carcinoma," by Dr. Evarts A. Graham, St. Louis; "The Use and Abuse of Artificial Pneumothorax," by Dr. Louis Mark, Columbus, Ohio; "Further Experience in Intrapleural Pneumolysis," by Dr. Ralph C. Matson, Portland, Oregon; "Body Section Radiography With Especial Reference to the Control of Collapse Therapy," by Dr. Warren C. Breidenbach, Dayton, Ohio; "The Significance

of Pulmonary Hemorrhage," by Dr. C. Howard Marcy, Asheville, North Carolina.

Dr. Soma Weiss, Boston, Associate Professor of Medicine and Professor Elect of Medicine at Harvard University Medical School, delivered the fourth Leo Loeb Lecture on April 20 on "Vasomotor Reactions and Circulatory Collapse." The lecture was presented under the annual lectureship established by the Mu Chapter of the Phi Beta Pi Medical Fraternity.

Dr. H. I. Spector, St. Louis, was a guest of the Sedgwick County (Kansas) Medical Society at Wichita, on March 21, for the third annual spring Clinical Assembly. In the morning Dr. Spector spoke on "Treatment of Pulmonary Tuberculosis With Special Emphasis on Collapse Therapy." At a noon meeting he conducted a round table discussion and in the evening he spoke on "Differential Diagnosis of Hemoptysis."

Dr. R. B. H. Gradwohl, St. Louis, was awarded a diploma as a member of honor of the Carlos Finlay Cuban Society of Biology and Tropical Medicine at Havana, Cuba, on April 5. Dr. Gradwohl presented an address on "Blood Grouping With Special Reference to the Medico-Legal Factors of M and N." While in Havana Dr. Gradwohl was a guest of Prof. Pedro Kouri, head of the Institute of Tropical Medicine of the University of Havana.

At the annual meeting of the St. Louis Clinics it was voted to omit the Spring Conference for 1939 out of deference to the coming meeting of the American Medical Association. Since any attempt to hold a conference would bring about conflict with this meeting and possibly detract from the attendance it was decided to forego the postgraduate course for this year. The St. Louis Clinics are cooperating with the American Medical Association in arranging a morning operative clinic at the various hospitals on Monday, May 15. Operative and dry clinics will be held as usual the week preceding and the week following the session of the American Medical Association. A program of these clinics may be obtained from the office of the St. Louis Clinics, 3839 Lindell Boulevard, St. Louis.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Campbell Products, Inc.

Mercupurin

Ampoules Mercupurin, 1 cc.

Ampoules Mercupurin, 2 cc.

Eli Lilly & Co.

Ampoules Solution Liver Extract Purified, 1 cc.
—Lilly, 15 U. S. P. Units per cc.

Sharp & Dohme

Sulfanilamide Tablets, 7½ grains

E. R. Squibb & Sons

Concentrated Antipneumococcic Serum—Squibb,
Types V and VII

Concentrated Antipneumococcic Serum—Squibb,
Types IV and VIII

The Upjohn Co.

Tablets Cinchophen, 5 grains

Tablets Cinchophen, 7½ grains

Winthrop Chemical Co., Inc.

Tablets Suprarenin, 0.02 Gm.

ORGANIZATION ACTIVITIES

GENERAL HOSPITALS AND THE WAGNER BILL

The following analysis of Section 1201 of the Wagner Bill, S. 1620, appeared in the *Journal of the American Medical Association* on March 25.

Section 1201 of the Wagner Bill, S. 1620, authorizes the appropriation in successive years of eight, fifty and one hundred million dollars, respectively, for the construction and improvement of general hospitals. Under section 1203 (a) (1), financial participation by the states is required. Naturally the extent of this participation will vary from state to state. Assuming, however, that the contributions of the federal government will be on a fifty-fifty basis,¹ there will be available for the construction and improvement of government-owned general hospitals \$16,000,000 in the fiscal year ending June 30, 1940, \$100,000,000 in 1941 and \$200,000,000 in 1942. Taking \$4000 as the average cost per bed of general hospitals,² this bill would make provision for the addition of 4000 general hospital beds in 1940, 25,000 general hospital beds in 1941 and 50,000 general hospital beds in 1942. These figures relate only to government-owned hospitals and do not include such enterprises, public or private, as may be undertaken without the stimulus of a federal subsidy. Over the eleven year period 1928-1938 inclusive the average annual increase in the number of beds in general hospitals was 1.9 per cent. The increases in number that are proposed in the Wagner Bill amount to a total of 79,000 beds, 16.2 per cent, in three years, or an average rate of increase of 5.4 per cent. In 1938 the general hospitals of the country were filled to 68.9 per cent of their capacity; 31.1 per cent of the beds were unused. Wherein lies the justification of the proposal to multiply threefold the normal increase of hospital facilities?

1. National Health Conference, July 18, 19 and 20, 1938, p. 39.

2. National Health Conference.¹ The Interdepartmental Committee uses \$3,500 as the average cost per general hospital bed.

THE STATE BOARD OF HEALTH

The State Board of Health wishes again to call to the attention of physicians the importance of more adequate reporting of communicable diseases. If the statistics gained from these reports are to be of value in planning public health programs throughout the state, the information must necessarily be more complete and accurate.

Some physicians have been under the impression that submitting a specimen to the State Laboratory for diagnosis is sufficient report to the Department. Ordinarily this will provide only the name of the patient and omits sex, age, color and geographic location, all facts which are necessary for properly planning public health control measures. For example, it would appear that the age incidence of scarlet fever is tending toward older age but reporting is of such a character that it is impossible to determine this accurately.

The State Board of Health provides postage free cards for reporting communicable diseases. Each individual case is to be reported on a separate card and mailed immediately to the District Office. Venereal diseases are reported on special cards for that purpose. Venereal reports must not be sent through the mail except in an envelope. These also are postage free. All report forms are available from the district health officers.

Physicians are warned against writing letters, notes or any other message other than the report asked for on these forms. Any other message constitutes a violation of postal regulations.

School health demonstrations were given in twenty-two Missouri counties during February and March. Sponsored by the State Board of Health and the State Department of Education, these demonstrations reached approximately 2400 teachers, the majority of them representing rural schools.

Designed to show teachers how they may carry on health programs with limited facilities, these demonstrations covered eight fundamentals: morning inspection, vision testing, hearing testing, hand-washing, hot lunch, weighing and measuring, birth registration and first aid. Teachers in the audience assumed the role of elementary school children for the day and served as subjects for the demonstrations.

An essential purpose of this program is to train teachers (and parents) to look to the family physician for the solution of school health problems and to replace home and school remedies with adequate medical care. Physicians and dentists are welcome to attend these meetings.

This program will probably be resumed early in the next school year and made available to as many counties as request it.

Preliminary figures show that 1938 was a favorable year for health. Statistics show a higher

birth rate and a lower death rate with decreases in infant and maternal mortality. Births totalled 63,280 and deaths 42,719.

Measles, a disease which is not readily amenable to public health control, reached epidemic heights in 1938 showing a death rate of 4.89 as compared with 1.05 in 1937. More deplorable is the fact that diphtheria was responsible for 122 deaths in Missouri during 1938, an increase over 1937 of about 30 per cent. It is hoped that more complete diphtheria immunization will eliminate this disease as a cause of death in the next few years.

Dr. James W. Chapman, Director of the Division of Child Hygiene, was elected chairman of a new organization, the Missouri Council of Public Welfare Agencies. Composed of key persons from all public health, welfare and educational agencies in Missouri, this council will help to coordinate the numerous services in the field and to reduce much of the duplication of effort that now exists.

At monthly meetings the different agencies represented will describe their work thereby clarifying for others exactly what service each has to offer. Besides the State Board of Health the council includes the Social Security Commission, State Department of Education, State Crippled Children's Service, State Eleemosynary Board, State Cancer Commission, State Board of Probation and Parole, University of Missouri Extension Service and the State Farm Security Administration.

Twelve nurses are receiving additional public health training before they are assigned to duty in the state. Two are at the University of Michigan, one at St. Louis University and nine at Peabody College, Nashville, Tennessee. This brings the total to eighty-one nurses who have been trained for public health work since the spring of 1936.

Smallpox continues to persist in Missouri. Most of the cases appear to be in mild form, in fact, many cases are being confused with severe chickenpox.

OBITUARY

FRANCIS AUBREY HOWARD, M.D.

Dr. F. A. Howard, Slater, a graduate of Washington University School of Medicine, 1877, died at the Fitzgibbon Hospital, Marshall, April 22, 1938, aged 84 years. He had been in poor health for two years.

Dr. Howard was born at California. He began his practice in Slater in 1878, in the early years of the city's growth. He was prominently identified with the professional, religious and social life of the town and county always finding time for civic and political enterprises. He was physician in charge at the Confederate Home at Higginsville for four years. He served the Saline County Medical Society as president for several years following its organization and again in 1927 and was delegate to a number of Annual Sessions. He was

elected an honor member in 1935. He was honored by a dinner given by the Saline County Medical Society on March 7, 1928, celebrating his completion of fifty years of practice.

He is survived by his widow, Mrs. Elie Lyne Howard, two daughters, one son, five grand children, four nieces and a nephew.

THOMAS C. ALLEN, M.D.

Dr. T. C. Allen, Bernie, a graduate of Barnes Medical College, 1901, died at his home November 18, 1938, aged 66 years.

Dr. Allen was born near Burfordsville in Cape Girardeau County and spent his early years in that community. He began his business career as a printer and editor working in several different towns and owning the *Marble Hill Press* and the *Current Local* in Carter County. After selling the latter paper he entered medical school.

He began his practice in Bernie and remained in practice there until ill health caused him to retire. He was active in medical society work, in civic, church and political activities. He served one term of six years as a member of the Board of Regents of the Southeast Missouri Teachers College at Cape Girardeau. He was graduated from the school in 1897 and twenty-two years later was appointed a member of its governing board by the late Gov. F. D. Gardner.

He is survived by two sons, one brother, four grandsons and one granddaughter.

AMOS HENRY BALDWIN, M.D.

Dr. A. H. Baldwin, Pleasant Hill, a graduate of the Hahnemann Medical College and Hospital, Chicago, 1890, died at his home on January 27, aged 73 years.

Dr. Baldwin was born in Knox County and was reared in Shelbyville by an uncle, the late Dr. A. H. Baldwin, under whom he studied medicine before entering college. He practiced in Webb City, Missouri, Anthony and Coffeyville, Kansas, and Kansas City before locating in Pleasant Hill in 1910. He moved to Pleasant Hill on a farm partly because of his health, feeling that out of doors life would be beneficial and divided his time between his practice and farm management.

Dr. Baldwin served in the legislature as representative from Cass County from 1927 to 1933 and took great pride in his part in fostering state aid to crippled children.

He is survived by his widow, Mrs. Charlotte Short Baldwin.

JAMES B. SUDDUTH, M.D.

Dr. James B. Sudduth, Clayton, a graduate of Barnes Medical College, 1904, died January 28, aged 82 years.

Dr. Sudduth was born at La Grange. He received a B.S. degree from the La Grange College and then studied pharmacy and entered the drug business in 1891. He began his study of medicine in 1900 and after his graduation began his practice in Clayton where he remained in active practice until a few weeks before his death.

Dr. Sudduth was the first Health Commissioner of Clayton and served in that capacity for sixteen years. He was an honor member of the St. Louis County Medical Society, a member of the Presbyterian Church, a member of the Odd Fellows and Clayton Masonic Lodge being a 32nd degree Mason in Missouri Consistory No. 1.

He is survived by a daughter and a sister.

F. P. KNABB, M.D.,
CARL IRICK, M.D.,
H. L. MEADOR, M.D.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

Dent County Medical Society, January 25, 1939.

Stoddard County Medical Society, January 30, 1939.

Howard County Medical Society, February 15, 1939.

Macon County Medical Society, February 22, 1939.

Johnson County Medical Society, February 25, 1939.

Morgan County Medical Society, March 21, 1939.

Webster County Medical Society, March 28, 1939.

Holt County Medical Society, March 31, 1939.

Bates County Medical Society, April 1, 1939.

Lincoln County Medical Society, April 5, 1939.

Miller County Medical Society, April 5, 1939.

Moniteau County Medical Society, April 5, 1939.

Barry County Medical Society, April 6, 1939.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Buchanan County Medical Society

The Buchanan County Medical Society was called to order by the president, Dr. F. X. Hartigan, at the Missouri Methodist Hospital at 8:00 p. m. February 1 with nineteen members present.

Dr. Ralf Hanks was elected to membership.

The following communications were read: A letter from the Cape Girardeau County Medical Society expressing their opposition to the proposed registration bill and their approval of the Basic Science Bill; a letter from the National Library of Peiping asking for medical reprints, books and periodicals of all kinds, old and new, for their office established now at Kunming, Yunnan, because of the Japanese military occupation of Peiping; a letter from Group Hospital Service, Inc., informing the Society of their progress in St. Joseph.

Dr. E. E. Wadlow, member of the committee on public policy, was unable to attend but sent a letter addressed to him from Dr. Emmett F. Cook, House of Representatives, giving the names of the members of the Public Health Committee and enclosing House Bill No. 111. Dr. W. T. Elam moved that the Buchanan County Medical Society go on record as being opposed to House Bill No. 111 and the secretary was instructed to write each member of the Public Health Committee informing them of the society's opposition.

Dr. H. De Lamater discussed the ordinance now before the City Council for periodic physical examinations of employees of beauty shops. It was moved by Dr. De Lamater, seconded by Dr. Judson M. Hughes and passed, that the Society go on record as endorsing this ordinance.

Dr. H. E. Petersen gave a paper on "Pyelitis in Children." The subject was exceptionally well presented. Essential points in diagnosis and treatment were stressed and special emphasis was placed upon the importance of continuing treatment until a complete cure was obtained. The paper was discussed by Dr. O. Earl Whitsell and closed by Dr. Petersen.

O. EARL WHITSELL, M.D., Secretary.

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR

Fifth Councilor District Meeting

The Howard County Medical Society and Central College were hosts to the Fifth Councilor District at Fayette on March 9.

At 7:00 p. m. a splendid five course complimentary dinner was served at Howard Payne Dormitory with a four piece string orchestra from Central College furnishing appropriate music. Dr. W. A. Bloom, Fayette, Councilor of the Fifth District, presided at the dinner and after welcoming the guests introduced some of the guests among whom were Dr. C. E. Burford, St. Louis, Chairman of the Board of Curators of Central College; Dr. R. H. Ruff and E. P. Puckett, Fayette, president and dean of the college; Dr. J. R. McVay, Kansas City, President-Elect of the Association, and Dr. Curtis H. Lohr, St. Louis, Chairman of the Council.

After dinner the group convened in Classic Hall Auditorium where Dr. W. B. Kitchen, president of the Howard County Medical Society, presided.

Dr. W. T. Coughlin, St. Louis, spoke on "Late Effect of Burns on the Hands."

Dr. C. E. Burford, St. Louis, talked on "Stones in the Urinary Tract."

Father Alphonse M. Schwitalla, St. Louis, spoke on "Intruders in Medicine."

Seventy-one members representing fifteen county societies attended the meeting.

Boone County Medical Society

The Boone County Medical Society met at the Episcopal Student Center, Columbia, at 6:30 p. m., March 7, with sixteen members present. After dinner the meeting was called to order by the president, Dr. E. D. Baskett, Columbia.

Dr. Maxwell Palmer was elected to membership.

Dr. Leo L. Grzesk was elected a member by transfer from the Randolph-Monroe County Medical Society.

Dr. W. E. Belden was made an honor member.

The question of policy regarding the listing in a professional roster of all members of the Boone County Medical Society to be included among the advertisements in the *Savitar* was discussed. Dr. W. J. Stewart, Columbia, moved that the Society reject all rosters and the motion passed.

The secretary reported briefly on a meeting of the presidents and secretaries of the State Association held

in Jefferson City, urging that the committee on legislation take action to influence legislators and others who might carry weight with the legislators regarding the proposed medical legislation.

The secretary outlined briefly the prepayment medical plans being proposed by the Committee on Medical Economics of the Missouri State Medical Association.

Dr. Karl Dietrich, Columbia, spoke on "The Relations of Urology to Obscure Abdominal Symptoms." Dr. H. McClure Young, Columbia, opened the discussion and emphasized the point brought out by Dr. Dietrich that obscure abdominal symptoms are many times indications of genito-urinary conditions in spite of the absence of urinary findings or other symptoms which are known to be definitely indicative of kidney trouble. The paper was well received and provoked considerable discussion.

Meeting of April 4

The Society held its regular monthly meeting at the Sinclair Pennant Tavern in Columbia at 6:30 p. m. The meeting was called to order by the president.

Dr. N. R. Ziegler, chairman of the committee on public health and legislation, reported that his committee had met and that contacts in accordance with the wishes of the Society had been made with the appropriate legislators regarding proposed medical bills before the governing bodies of the state.

The secretary read a letter from Dr. W. E. Belden expressing his thanks for the honor membership recently conferred.

The secretary read a letter from Dr. D. A. Robnett, Chairman of the Missouri State Medical Association Committee on Cancer, calling attention to certain matters of policy relative to the admission of patients to the new Cancer Hospital. The letter was referred to the committee on cancer.

The secretary called attention to the combined meeting on pediatrics and obstetrics for lay groups to be held May 26.

Dr. D. A. Robnett spoke briefly on the inadequacy of hospital space in Columbia relative to the rapid increase in population, bringing out that since the earliest hospital had been established the city had slowly but surely exhausted the supply of available beds and that sooner or later some definite steps must be taken to enlarge the present facilities for private patient care in the city. Dr. Robnett moved that the chair appoint a committee to study and report upon the existing needs, together with the possibilities for increasing the facilities now available to a point where the care of hospital patients could be considered adequate to the needs. Drs. W. J. Stewart, D. G. Stine, C. M. Sneed, A. R. McComas and A. W. Kampschmidt contributed observations in their particular fields as to the inadequacy of the present setup. Following this discussion, the motion was carried, and the chair appointed the following committee: Dr. D. A. Robnett, Chairman; Drs. A. R. McComas and D. G. Stine.

Following dinner an interesting illustrated discussion of cancer problems was given by Dr. D. A. Robnett in which he brought out among other items the importance of first class color photography as an aid to the proper case study.

M. E. COOPER, M.D., Secretary.

Cooper County Medical Society

The Cooper County Medical Society met at St. Joseph's Hospital, Boonville, January 27.

Dr. W. A. Bloom, Fayette, Councilor, was present and discussed the proposed legislation. The Society voted to approve the Basic Science Law.

Officers elected for 1939 were: President, Dr. Arie

C. H. Van Ravenswaay, Boonville; vice president, Dr. G. L. Chamberlain, New Franklin, secretary; Dr. J. C. Tincher, Boonville; delegate, Dr. G. W. Winn, Boonville, and alternate, Dr. Aubrey Wells, Boonville.

Those present were Drs. W. A. Bloom, Fayette; G. L. Chamberlain, New Franklin; J. O. Boley and C. Sandy, Pilot Grove; G. W. Winn, T. C. Beckett, W. H. Ziegler, A. H. Wells and J. C. Tincher, Boonville.

J. C. TINCHER, M.D., Secretary.

Howard County Medical Society

The Howard County Medical Society met in Lee Hospital, Fayette, on March 31 with all active members present.

The following officers were re-elected for one year: President, Dr. W. B. Kitchen, Glasgow; vice president, Dr. W. M. Dickerson, Armstrong; secretary-treasurer, Dr. W. J. Shaw, Fayette; delegate, Dr. W. B. Kitchen, Glasgow; alternate, Dr. W. R. Hawkins, Glasgow.

The Society passed a resolution instructing the secretary to write Dr. R. H. Ruff, Central College, expressing the appreciation of the Society for his hearty cooperation in entertaining the doctors and guests of the Fifth Councilor District on March 9.

The next regular meeting will be held on May 31, at which time Dr. J. W. Gardner, Glasgow, will lead a symposium on "The Present Day Treatment of Pneumonia."

W. J. SHAW, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society held a dinner meeting on March 13 at the Colonial Tavern, Cape Girardeau.

Dr. J. H. Cochran called the meeting to order and requested Dr. C. T. Herbert to introduce the guest speakers, Dr. Lyle Motley and Dr. R. L. Sanders, Memphis, Tennessee.

The subject of gallbladder disease was discussed as a symposium and was well covered to the great satisfaction of the audience who derived pleasure and erudition from the essays.

A round table discussion followed.

Members and guests attending were Drs. R. L. Sanders, Lyle Motley and R. L. Sanders, Jr., Memphis, Tennessee; B. Cohen, C. D. Nobles, P. M. Nation, N. L. Hoffenburg, D. L. Pang and H. Phillips, Anna, Illinois; D. I. L. Seabaugh, Jackson; Edward Crites, Sedgwickville; E. J. Nienstedt, Sikeston; J. H. Cochran, C. T. Herbert, Glenn Tygett, P. B. Nussbaum, W. E. Yount, D. B. Elrod, W. F. Oehler, D. H. Hope, Frank W. Hall, O. L. Seabaugh and C. A. W. Zimmermann, Cape Girardeau.

C. A. W. ZIMMERMANN, M.D., Secretary.

Six County Medical Society

The Six County Medical Society met at the City Hall in Portageville, March 16, with Dr. John J. Killion presiding.

Dr. John H. Hershey, St. Louis, spoke on "Surgery of the Stomach."

Dr. Leo J. Hartnett, St. Louis, talked on "Postpartum Hemorrhage."

Those present were: Drs. H. A. Dunaway, E. A. Bellden and E. J. Nienstedt, Sikeston; T. L. Waddle, Dexter; L. J. Smith and W. L. Digges, New Madrid; J. P. Brandon, Essex; George W. Husted, Parma; Claude McRaven, Marston; W. R. Limbaugh and W. F. Pitt, Hayti; G. W.

Phipps, Fred L. Ogilvie; J. B. Luten, P. J. Aquino and C. C. Castles, Caruthersville; John J. Killion, A. A. Reeder, R. C. Conrad and H. T. O'Kelley, Portageville; A. V. Presnell, Paul Baldwin and J. H. Keim, Kennett, and L. E. Cooper, Cooter.

L. E. COOPER, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

17th Annual Meeting, St. Louis

President, Mrs. C. C. Tomlinson, Omaha, Nebraska.

President-Elect, Mrs. Rolla K. Packard, Chicago.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

16th Annual Meeting, Joplin

President, Mrs. Paul F. Cole, Springfield.

President-Elect, Mrs. Stanley P. Howard, Jefferson City.

Reports at the state meeting in Excelsior Springs, April 11 and 12, brought forth some interesting facts for 1938-1939.

More than fifty public relations meetings were held with an estimated attendance of 9000 persons. Membership dues were received from twenty county auxiliaries totaling 750 members, a loss due to drop in membership dues from St. Louis City Auxiliary from 262 in 1937-1938 to 59 for 1938-1939. However, fifteen counties reported gains in membership for the current year. The treasurer's books showed a balance of \$130.07 at the beginning of the fiscal year and \$184.80 at the close with all bills paid.

Hygeia subscriptions totaled 639 for the state. There were 498 reported members of study groups, these having read the required five articles of medical interest. Selected essays were received from thirty-five towns in the state to compete in the contest on "Highway Hazards" conducted in the high schools of Missouri. First prize of \$25 was awarded to Hilda Scott of Columbia High School, Columbia. The second prize of \$15 was awarded to Ruth Watkins, Columbia University Laboratory School, Columbia, and the third prize of \$10 to James Gray, McBride High School, St. Louis. Ten prizes of \$1 each went to students in various parts of the state. Voluntary contributions from county auxiliaries for expense of the contest totaled \$93.50.

Registration at the state meeting was 148 with many attending social events who did not register. Ninety-five attended the luncheon on Tuesday when Mrs. Tadeo Campuzano spoke. There were 350 at the Bring-Your-Husband Dinner to hear the splendid address of Dr. R. Emmet Kane, St. Louis. The annual luncheon on Wednesday was attended by ninety-eight. Nine of the fourteen past presidents were present for the crystal anniversary program in their honor.

The second annual Endowment Tea of the Jackson County Auxiliary was held at the home of Mrs. James Logan, Kansas City, on April 14, with Mrs. A. W. McAlester, Kansas City, in charge. The purpose of the teas is to raise money for an endowment fund for the Medical Library. A rotating committee of four mem-

bers conducts the work. Each year the chairman retires and a fourth member is appointed, the members moving in order to the chairmanship. The project has been incorporated in the constitution of the auxiliary and the fund is invested in United States Savings Bonds.

A hobby show was conducted with the first tea and beautiful china, its origin and how it was made was the attraction at the tea this spring. Music was played throughout both programs. The project affords service and sociability, two fundamentals upon which the Auxiliary was built. The members of the Jackson County Auxiliary feel that they have established a project that is approved and appreciated by the Medical Society.

OFFICIALS WILL MAKE RADIO BROADCAST AT ST. LOUIS SESSION

Radio broadcasts by Irvin Abell, M.D., Louisville, Ky., President of the American Medical Association, and Rock Sleyster, M.D., Wauwatosa, Wis., President-Elect, will be given Monday, May 15, in connection with the Association's Annual Session in St. Louis, *The Journal* of the Association for April 22 announces.

RESTRICTION IN USE OF PROPRIETARY SEDATIVE ADVOCATED

A case of bleeding under the skin, characterized by purple spots (hemorrhagic purpura), due no doubt to the proprietary sedative, sedormid, is reported by Teresa McGovern, M.D., and Irving Wright, M.D., New York, in *The Journal of the American Medical Association* for April 29.

The authors state that "while it is probable that many persons have suffered no ill effects from sedormid, the forty-five cases of hemorrhagic purpura reported in the literature following its use should cause real concern. This emphasizes the need for further study of its properties, restriction of its sale except on a physician's prescription and caution on the part of the physician in recommending its use."

The condition occurred in a white woman aged 57 who complained of multiple hemorrhages. No injury had been sustained to account for the condition. Her legs, thighs, arms, body and mouth had hundreds of hemorrhages of various size. When she was hospitalized she was spitting blood. Questioning about self-prescribed medicine brought out the fact that the patient had taken one-half tablet of sedormid nightly for several months, with no ill effects. After a lapse of about a month she took a whole tablet the night before the onset of the present condition. Soon she became acutely ill, with chills, fever and excessive thirst. A sleepless night was followed by a raging headache the next morning. By evening she had spotted hemorrhages under the skin.

After a week's hospitalization and treatment, when the condition of the patient's blood had started to improve and her hemorrhages to disappear, the patient was discharged.

Two months later she again took one-half tablet of sedormid at bedtime. Within two hours chills and fever were experienced, and her stomach "felt as if it were stretching." The next day her mouth was filled with hemorrhages, so that she was spitting blood continuously. There was oozing from the nose, and scattered over her body were approximately 300 small hemorrhages. High doses of vitamin C were given the patient by mouth. It required three weeks for the hemorrhagic areas to disappear. At the present time, one month after the recurrence, she has residual stiffness of her knees, which may have been caused by hemorrhage into the joints.

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PROSTATIC HYPERTROPHY

FACTORS DETERMINING MANAGEMENT OF PATIENTS

A. LLOYD STOCKWELL, M.D.

AND

CLINTON K. SMITH, M.D.

KANSAS CITY, MO.

It is the purpose of this study to examine the problem of management presented by patients with symptoms of bladder neck obstruction due to changes in and about the prostate gland. The desired end result is a living patient who can empty his bladder, has normal sphincter control, has assurance that his prostatic obstruction will not recur and exhibits unchanged sexual function.

Although considered usually as a surgical problem, we want to examine also the medical and preparation aspects. Because the general systemic changes from normal are already present when the patient comes for relief, it is expedient to consider them first. The results of the examination and history influence our decisions as to management in no little degree. Patients with poor cardiovascular-renal function, diabetes, anemia, malnutrition, urinary bleeding, with or without long standing obstructive symptoms, require considerable investigation and care before attempting a correction of the urinary defect. Patients with grossly infected urine cannot be considered suitable risks until the infection has been controlled. Men over 70 years of age require meticulous medical and laboratory analysis before considering the prostatic problem itself. On the other hand, in men in the fifties and sixties in good general health, with normal cardiovascular-renal function and no local genito-urinary complications such as bleeding, calculi and infected urine, the obstructive problem itself may assume first importance. The patient with a symptom-producing prostate is entitled to careful medical analysis as a whole, before attention is focused on the problem which is so fascinating to the urologist. This is the first step in management.

There is no rule of thumb applicable to patients with hypertrophy of the prostate gland as a whole

because each is an individual problem. The methods in use today are surgical, utilizing the suprapubic, perineal or transurethral approach; or non-surgical which are endocrine therapy and use of a catheter through life. Concerning the latter, it is possible that hypertrophy follows a decrease in androgen accompanying older age, thus setting free substances influencing growth of the prostate.¹ No satisfactory experiments nor clinical results however have been published to permit an evaluation, even in those of Lower in 1935. As to use of the catheter, it is usually stated that from eighteen to twenty-four months is the average life expectancy after it is begun, death resulting from urinary sepsis. Some cases using the catheter as long as ten years have been reported.²

Concerning the surgical treatment of prostatic hypertrophy, Hinman aptly stated, "Operation has become an incident in the course of management of which preparation is the substance." It is an axiom with us that successful results in living patients increase with the skill exercised in planning preoperative management. Considerable intelligent experience is required to develop judgment in management of the individual case. Every author has his own method, ranging from ours in which we emphasize the preparation period to those who have apparently disregarded it entirely.^{3, 4} Repeated analysis of our records in 450 cases, in which ages range from 49 to 92 years, indicate that as we prepare our patients better the results improve and a death from operation is unusual, none occurring in our private practice during twenty months.

The factors influencing most the course of the preparatory period are: age, general health, physical and laboratory findings, especially those of the cardiovascular-renal systems, amount of residual urine, time the obstruction symptoms have been present, gross, mild or no urinary infection, calculi, caliber of the urethra, size of the prostate as determined by rectal, cystoscopic and occasionally cysto-urethrographic examination, and finally is it thought preoperatively to be benign, or if malignant is it local or has it metastasized?

We find ourselves fitting patients into one of three groups for preparation as follow: Those in

Read at the 81st Annual Session of the Missouri State Medical Association, Jefferson City, May 2-4, 1938.

which we shall do, (1) a classical or trocar suprapubic cystostomy, (2) urethral catheter alone; (3) no preparation. To patients of any of these groups we apply supportive and specific therapy as indicated by the preliminary medical study. To all patients however, we usually administer ammonium mandelate, grams 12, or sulfanilamide, grains 40, daily for a week or so of the preoperative period but have found this of little or no value in the immediate postoperative period. We have recently been giving androsterone postoperatively, not for its effect on the prostate but because it seems to stimulate definitely the sense of well being.

Group 1. If the patient has over 200 cc. residual urine, the prostate is size 3 or 4 or over, the patient has a large vesical calculus, pyelitis, pyelonephritis, cystitis, a nonprotein nitrogen over 70, fever, chills, severe malnutrition or tolerates a urethral catheter poorly, we elect to do a suprapubic cystostomy. In this group also are placed the patients with acute severe retentions in whom catheterization is mechanically impossible, and the feeble old patient whom you expect to send home for a period until his nutrition, renal and general condition improve. Except in cases of calculi or resectable diverticulac, we prefer a simple trocar punch where there has been no previous abdominal surgery; otherwise, we do the classical suprapubic drainage. The simple trocar punch cystostomy has the following advantages: simplicity of the operation, entire absence of shock and a clean wound which heals rapidly in from twenty-four to seventy-two hours after removal of the catheter no matter whether the tube has been in place a few days or several months. With the bladder well distended with water, the patient in extreme Trendelenburg position and a punch about an inch above the symphysis, there is no danger of intraperitoneal injury.

We have always instituted rapid decompression of the bladder. No ill effects have resulted and we believe with Greevy⁶ who made an excellent study of this problem, that death does not result from sudden emptying of the bladder but from infection. In these two groups, as general supportive measures, blood and intravenous infusions are used freely to induce a decline in the nonprotein nitrogen and increase outputs of normally concentrated urines. These are the poor risk groups that exhibit many of the phenomena resulting from their changed physiology. Temporary abdominal distension, loss of appetite, toxic psychosis, renal suppression, increased severity of already established cardiac dysfunction, fever and chills, all or any of these may appear to tax the skill of the urologist in determining how to combat them and how long to wait before removing the obstruction. Patients making a slow adjustment who cannot afford a long hospitalization, we usually send home. The simple suprapubic catheter is easily handled and many patients improve under home care with the assistance of the family physician faster than when hospitalized. Upon return to the hospital at the proper

time these patients can be safely operated on immediately.

Group 2. For patients with residual urine of from 200 cc. to 100 cc., calculi suitable to transurethral litholopaxy, infected urines, bladder neck obstructions of size 3 and under, that appear clinically in fair but not good condition, that have near normal laboratory findings with nonprotein nitrogen of less than 70, we prepare on a urethral catheter alone.

Group 3. Those with 100 cc. or less of residual urine, clear urines, small prostates, bars, trigonal hypertrophies, small or no calculi, in good general condition with near normal laboratory findings, regardless of age we do not subject to a preparation period but operate immediately.

In all groups we do a bilateral vasectomy. Some authors state the procedure unnecessary but we have had no epididymitis in our series. None complain of the nature of the orgasm afterward. In all patients exhibiting extremely poor renal function by blood chemistry and phenolsulphonphthalein determinations or with gross infections thought not to be due entirely to cystitis or prostatitis, an upper urinary tract examination is done, usually an intravenous urogram alone, to be followed by pyelography if further detail is needed. Many divergent opinions on the value of preparation appear in the literature. A series in which 80 per cent were operated on without preparation³ has been reported. Scarcely any cystostomies have been done by two advocates of the transurethral method^{4, 7} although capable authors have stated⁵ "Cystostomy followed by resection has little or no mortality and is the safest of all procedures for attack on the prostate gland." Herman² states "Suprapubic prostatectomy may be safely done without preliminary cystotomy, but preoperative treatment is essential to either radical or transurethral resection." We reemphasize, that successful results in living patients increase with the skill exercised in planning preoperative management. The management of the case from now on lies in the selection of surgery and time to operate. A review of comprehensive reports indicate suprapubic enucleation in a one and two stage procedure has mortalities from 4 per cent² to the average over the country as a whole of 20 per cent according to Cabot. It is especially hard on the man of 70 and over. Perineal prostatectomy in the hands of its expert advocates has a low mortality of from 3 to 4 per cent but the average is given as 10 per cent,² with complications of fistulae and incontinence as occasionally embarrassing sequelae.

Transurethral surgery, whether by the punch, cold or cautery, or the electroresectoscope has a mortality of less than 2 per cent according to Thompson, of 10 per cent and 12 per cent by other authors,⁸ with an average of less than 4 per cent according to Cabot. The results are permanent, function is good and complications rare in correctly operated cases. Equally good results are reported

by various authors indicating it is the surgeon behind the transurethral instrument and not the type of instrument that is most important.

We select our cases this way: In a patient with a large prostate, size 4, and considered a first class risk regardless of age, we do a suprapubic enucleation. To this we add cases that come from a distance who are suitable risks and will return to communities poorly serviced medically, where adequate treatment for a postoperative transurethral case will not be available. In addition we would enucleate an early carcinoma if seen. Of 450 patients with prostatic hypertrophy operated on by us, only seven operations have been done suprapubically. The time interval between beginning preparation as outlined above and operating is indeterminate and is judged entirely by the day to day response of the patient to his adjustment period. Whenever he appears in good condition clinically and has near normal laboratory findings, he is operated on whether it is only three or four days or three or four months. The average is from ten to twenty-one days.

We decided to operate on the remaining cases transurethrally with electroresection. Here again, whenever the patient appears clinically in good condition, is as free of infection as possible and has improved renal, cardiac and laboratory findings, we operate. Some patients are suitable after a few days of preparation, others require from one to three weeks. We are not anxious to hurry any of these patients because we have proved that, if the patient is in good condition and free of infection, he has no reaction to the operation at all and complications of shock, subsequent pyelonephritis or death are entirely absent. In most of this group we do practically a transurethral prostatectomy removing from 20 to 60 grams of tissue in from three fourths to one and a half hours at one sitting. Four hundred twelve of these cases have voided well afterward. Fifteen required a second resection, ten of whom had carcinoma. The remaining twenty-three represents elderly men on whom a two or three stage operation transurethrally was planned as less dangerous than a suprapubic enucleation, or than a prolonged single transurethral operation. It requires skill, speed, accuracy and good luck against annoying bleeding to remove from 20 to 60 grams of tissue in three fourths to one and a half hours. The operation must be complete and well done to produce good results. Considerable experience is needed to produce this skill. Transurethral resection has come to stay. It is safe, provides free exit of urine, preserves the sphincter vesicae, and judging by from ten to twenty years experience recurrence of hypertrophy is as rare as in the other two surgical methods. Sexually the majority of patients are unchanged or somewhat rejuvenated and only eight of our series complained of impotency. In removing this much tissue transurethrally we approach a total prostatectomy.

The choice of surgery lies with the operator and

we believe transurethral prostatectomy in our hands is the method of choice except in the case of large hypertrophied prostate. Its advantages are shorter hospitalization, applicability to a wider age range and low mortality. For the occasional surgeon or the hospital not equipped with a special urological nursing personnel, suprapubic enucleation is the best practice.

Just a word concerning carcinoma. All carcinomas we have seen were beyond the capsule upon first examination, or were accidentally discovered in the resected specimens. We have tried transurethral resection alone and in combination with radon and roentgen ray radiation. We believe that until further improvement in methods develops, the transurethral attack is the least formidable and most comfort-producing of any in use today. Resection alone seems to produce as good results without the annoying reactions to radiation as does resection plus local radiation therapy.

CONCLUSIONS

1. The medical aspects of each case must be adequately investigated and managed before attention is focused on the prostate.
2. Well planned, ample preparation time is the most important step next to the operation in managing cases with prostatic hypertrophy.
3. Five patient groups are outlined for planning the course of preparation and operation.
4. In our hands, except in the case of exceedingly large prostate, transurethral resection is the method of choice.
5. In the properly prepared patient, operation is followed by little or no shock and good functional results.
6. The transurethral method offers the greatest relief with the least inconvenience to the patient with carcinoma of the prostate.

505 Professional Building.

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DISCUSSION

DR. CLINTON K. SMITH, Kansas City: The theme of Dr. Stockwell's paper, individualizing prostatic surgery, is one that has long been dear to my heart. There is probably no other surgical procedure which lends itself so well to individualizing as prostatic surgery. We see a definite reason for this when we pause to re-

member that before the candidate for prostatic surgery comes to us he long has been laboring under a bladder neck obstruction which has changed the level of his whole physiology and that necessarily this must be brought back to a stable level before any sort of surgical operation can be well undertaken. Osler said, concerning syphilis, "He who knows syphilis knows medicine." It, likewise, well can be said that he who knows the preoperative prostatic patient also knows medicine. He must be cardiologist, gastro-enterologist, and oftentimes psychologist as well as surgeon.

Today, we have arrived at the place where, if a patient is properly prepared, surgery of the prostate can be as consistently carried out as any other surgical procedure, particularly upon patients of advanced age.

The time element in preparation which Dr. Stockwell stressed I consider extremely important. There is no such thing as a fixed time limit concerning the preparation period. I am firmly of the opinion that, in view of the generally well understood principles of preparation today, the time element is the most important factor in mortality and by this, my intent is to convey the thought of time in combination with suprapubic drainage. I feel very strongly that today there is a tendency to veer away from suprapubic drainage to a deplorable extent. I am sure that many graves of patients with disturbance of the prostate gland would still be empty had this lesson, so well learned in the past, been kept actively in mind; and that goes for the newer transurethral procedure which, to my mind, must accept the responsibility. Essay after essay has appeared on transurethral resection wherein the outstanding theme appears to be, "I can get my man out of the hospital sooner than the other fellow." And too often the essayist fails to say how the patient left the hospital. I would recommend that every resectionist reread at regular intervals Bransford Lewis' immortal essay entitled "Transurethral Resection Without the Moonlight and Roses." While I do not wish to take issue with what Dr. Hall has said I am unable to share his "Moonlight and Roses" optimism in the resection matter. After an experience with some 500 cases I have a more wholesome respect for the pitfalls of the resection procedure than I had at the first fifty mile post. I hasten to repeat and reemphasize that more suprapubic drainage and time could be well utilized with the resection procedure. I have about reached the conclusion that a few days of catheter drainage before resection is not only useless but in many cases a decided menace in the matter of infection. Either the patient is ready for resection or, to my mind, he needs suprapubic drainage. Today, we are pretty well agreed that practically a transurethral prostatectomy must be done if we expect to equal the clinical results of the prostatectomy and this, particularly in the large prostate type of case, calls for a rather close adherence to the well known rules of preparation for prostatectomy.

DR. ANDY HALL, JR., St. Louis: Prostatectomy is not an obsolete operation. No doubt, every doctor present has at least one patient suffering from prostatic obstruction and it is probable that some of you men over the age of 50 years have a very personal interest in the problem. Prostatic obstruction is always a progressive ailment, never retrogressive. This condition may develop slowly and for a variable length of time be almost symptomless, but it always causes some degree of damage to the kidneys, bladder, heart and other vital organs. I repeat that prostatectomy is not an obsolete operation and it will not be made so by any of the methods now available, but in keeping with the findings of the presentation just made, such obstructions may be successfully and rationally treated by resection in fully 90 per cent of cases. Ten per cent or less, including those patients who have a very large prostate or certain other complications such as a bladder diverticulum, should be subjected to prostatectomy.

When we consider that the normal prostate gland weighs only about 25 grams and that it may hypertrophy to the immense size of 500 or 600 grams, or even more, you will see the mechanical impracticability, if not impossibility, of dealing with such a massive gland by the transurethral method. On the other hand, several thousand prostates removed by suprapubic enucleation because of obstruction, and prior to the advent and popularity of transurethral resection, were found to have an average weight of only about 50 grams. Ninety per cent or more of these might easily and rationally have been resected. In dealing with obstruction due to cancer of the prostate it is my opinion and, I believe, the opinion of most urologists, that the only surgery indicated is of a palliative nature, i. e., such surgery as will permit the patient to live as comfortably as possible and to void normally. This problem is best answered by transurethral prostatic resection.

Eight years ago transurethral prostatic resection was hailed as a benign procedure and it was inferred by some that it hardly justified hospitalization, consequently, it was attempted by some who were not adequately trained in the procedure or in the management of urological problems. The result was that with some operators a high mortality rate occurred and only temporary relief of the obstruction was afforded in many cases. As the complications and failures became known, both public and professional opinion shifted from one of enthusiasm to one of skepticism. Now, after a decade of experience with prostatic resection we are able to evaluate properly the operation on a rational basis.

Prostatectomy is an operation which does not require special equipment or unusual surgical skill but it does demand a maximum of surgical judgment. It usually requires hospitalization of from six to eight weeks and is usually followed by a period of disability lasting for another few weeks. The financial burden of such prolonged hospitalization and disability is sometimes staggering to the patient of modest means. More important, the enucleation of the prostate carries a mortality rate which ranges from approximately 5 per cent to 8 per cent in the best clinics to an estimated 20 per cent to 30 per cent the country over. Prostatectomy is usually performed in two stages with the attendant dangers of two operations.

Transurethral prostatic resection justifies the same preoperative care as prostatectomy but it rarely requires more than one operation and that usually may be performed under "twilight sleep" which in itself entails negligible risk. Postoperative hospitalization for my own series of cases averages only eight and a fraction days and the postoperative period of morbidity is correspondingly brief. The mortality rate in good hands averages from 1 to 2 per cent.

I wish to congratulate Dr. Stockwell for his able presentation and his splendid results.

WARNS OF LOCAL IRRITATION DANGERS FROM INHALING EPINEPHRINE

The possibility of local irritation from epinephrine, often inhaled as treatment for asthma, must be carefully considered before prescribing the drug, J. V. Galgiani, M.D., William Dock, M.D., M. L. Tainter, M.D., San Francisco, and Frederick Proesch, M.D., San Jose, Calif., warn in *The Journal of the American Medical Association* for May 13. They report a case of irritation of the mucous membrane of the windpipe due to a 1 per cent solution of epinephrine, inhaled by a tuberculous patient. They advise physicians to determine whether the undesirable effects will be great enough in the individual patient to outweigh the convenience of taking the drug by inhalation rather than by injection.

DISEASES OF THE TESTICLE

OTTO J. WILHELMI, M.D.

ST. LOUIS

Since diseases of the testes and their tunica are relatively rare compared with enlargements of the epididymis and cord, I thought it might be of material benefit to the general practitioner to review those diseases and anomalies which are confined to the testis itself. Too often are we inclined to brand every swelling in the scrotum as an orchitis when in reality its pathological condition is of an entirely different origin. The most frequent scrotal enlargements are due to pathological conditions in the epididymis and not in the testis.

THE UNDESCENDED TESTICLE

Within the last month I operated upon a 12 year old boy with a right undescended testicle who had no idea that his testicle was atypically placed nor did the obstetrician at the time of his delivery notice this malposition. Therefore, I do not think we can be too emphatic about the importance of the examination of the scrotum of the newborn, nor be too alert to notice cryptorchidism. Up to the last few months of intra-uterine life the testis lies extraperitoneally in the iliac fossa and in close apposition to the internal ring. At birth, under normal conditions, it moves down the inguinal canal into the scrotum. There are many theories as to the cause for the nondescent, the most accepted theory today being the faulty development of the internal oblique and conjoined tendon.

The location of the undescended testicle may vary in position, often occurring (a) in the abdomen, (b) in the inguinal canal, (c) just distal to the external ring, or (d) it may be a migrating type moving at random upward and downward in the inguinal canal.

It is generally conceded today that it is wise to do an orchidopexy upon nearly all types of displaced testes which exist after the eighth year, not only to avoid the possibility of trauma but also to avoid atrophy with subsequent sterility. Statistics show that the theory of tumor formation resulting from displacement is not well grounded. Orchidopexy should be performed between the second and fourth years if glandular therapy fails for the testicle seldom if ever voluntarily descends after the eighth year.

INJURIES OF THE TESTICLE

One doing industrial surgery runs into a large incidence of injuries of the testicle. It is quite true that injuries would be much more frequent were it not for the fact that the testicles are fairly well protected because of their location and mobility in the scrotum. Crushing injuries and lacerations are accompanied by effusion in the tunica vaginalis

and, if severe, a rupture of the testis itself may occur. Gunshot wounds, on account of the vascularity, may require immediate orchiectomy. One should keep in mind that trauma and severe strain often precede a torsion of the cord.

ATROPHY OF THE TESTICLE

Mumps is by far the most frequent forerunner of atrophy of the testicle, which occurs as a sequel to the disease. Another common cause of atrophy is the hernia operation and these atrophies undoubtedly occur from an interference in the blood supply at the internal inguinal ring. Large varicoceles cause a pressure atrophy of the testis and occasionally, if one is too ambitious and dissects too many veins from the pampiniform plexus during a varicocele repair, he may get a subsequent atrophy. We must not lose sight of the fact that latent cases of lues also cause testicular atrophy.

INFECTION

Infection in the testis occurs from two main sources, namely, (a) the blood stream, (b) by local infection that extends along the vas and epididymis. We may find miliary abscesses in the testicular substance or these smaller abscesses may fuse and the entire testis become transformed into a large abscess cavity.

Acute orchitis results from any systemic infection such as typhoid fever, influenza or even osteomyelitis. Mumps is the most frequent cause of acute orchitis, the enlarged testicle being the only symptom. About one patient in every eight having mumps becomes infected with orchitis. The patient has a sudden rise in temperature and a marked swelling of the testis which lasts from three to five days. The swelling may be bilateral, is sensitive to palpation and results in atrophy in about one third the cases, followed by subsequent sterility.

Chronic orchitis which has an insidious onset is painless and the testicle appears enlarged, swollen and hard. Tertiary syphilis is the main etiological factor in these cases. In gumma of the testicle the mass is not so large but more nodular than that which is formed in interstitial syphilitic orchitis.

HYDROCELES

Hydrocele seems to confuse the general practitioner more often than any other scrotal enlargement. It results from an abnormal accumulation of fluid in the cavity of the tunica vaginalis and may be congenital or acquired. In the congenital types, a hernia often accompanies the hydrocele because in infants the vaginal process may not completely close at the inguinal ring.

Acute hydrocele is always secondary to inflammation of the epididymis or testis. Often the inflammation is infectious in origin as gonorrhea. Nearly every epididymitis is accompanied by a hydrocele carrying from 30 to 40 cc. of fluid, and one would be amazed at the immediate relief which

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occurs upon aspirating this fluid from around the acutely inflamed epididymis. Syphilis must not be overlooked as a possible etiological factor in acute hydrocele.

The majority of the hydroceles that come to our attention are those of the chronic type and are most frequent in men between 40 and 60 years of age. These enlarge slowly and cause little or no pain unless their proportions are such that they cause a tugging upon the vas deferens.

Filariasis and bilharziasis in the tropics cause tremendously large hydroceles often weighing as much as from 80 to 90 pounds and requiring a wheelbarrow to support the scrotum so as to enable the patient to walk. Tumor and syphilis of the testicle also cause this type of hydrocele and frequently circus riders develop hydroceles as a result of persistent trauma. Nephritic as well as cardiac conditions are often accompanied by a chronic hydrocele.

Hematocoele usually results when the testis is injured with a sudden effusion of blood into the cavity of the tunica vaginalis. These cases are rather infrequent and I recall but two within the last ten years, both of which gave a definite history of trauma.

Chyloceles are frequent in the tropics and rare in this country. We had one case on our service in a Mexican infected with filaria and it is the only case I can recall ever seeing in this country. The scrotum was markedly distended, painless and smooth, and upon aspiration a thin white fluid was released.

NEOPLASMS OF THE TESTICLE

It is surprising how many enlarged testes are diagnosed as tumors, while in reality tumors of the testicle are rare accounting for only .58 per cent of all tumors found in men. From a clinical standpoint, all tumors of the testis should be considered malignant until proved otherwise.

Pathologically most of these tumors are found to be teratomatous and therefore one should exercise due precaution before diagnosing a case as a carcinoma because the latter is extremely rare.

Cairns, in a recent study of ninety-five testicular tumors, states that primary tumors of the testis belong to one of two groups: (1) embryonal carcinoma or (2) the seminoma.

Metastasis occurs rapidly in testicular tumors via the following routes: (1) Through the lymphatics of the spermatic cord. In this fashion through the retroperitoneal lymph glands a rapid metastasis to the lungs and pleurisy occurs. (2) By the veins. This is one reason why we see so many early pulmonary metastases. (3) By way of the superficial lymph nodes. It is not unusual to see abdominal metastasis of such magnitude that it causes intestinal obstruction, or the extension may occur in the vertebrae and cause a paraplegia. I recall one case that was so massive it obstructed the ureters and caused uremia.

The relation of testicular tumors to trauma previously sustained by the individual is very interesting. For a number of years the laity, as well as the profession, were under the impression that trauma was a dominant factor in tumor formation, but Cairns reports only fourteen cases of trauma in his series of seventy-nine cases, and Young states but 30 per cent of his cases had previous injury to the testis.

We are inclined to believe today that injury is a rather insignificant factor in tumor formation and that the blow at the time merely calls the attention to a mass that had already existed.

In sixty-three cases of tumor only six were found that had cryptorchidism and the majority of these showed the testis to be in the inguinal canal.

The cardinal symptom of testicular tumor is an enlarged, smooth, freely movable mass in the scrotum which is accompanied by abdominal or pulmonary symptoms. Pain is not pronounced but comes on gradually.

One should be alert to the fact when examining these tumors that in the acute stage such a swelling could be caused by mumps or trauma, while in the chronic stage by syphilis and tumors.

This manuscript is limited to a condensed résumé of the diseases of the testicle and on account of the short time allotted it is impossible to take up differential diagnosis and treatment.

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INDICATIONS FOR SURGERY OF THE STOMACH

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If the number of papers published during the year on any one subject can be taken as an indication of the interest in that particular field, it is evident that we are all much concerned with the successful diagnosis and treatment of diseases of the stomach. The yearly growth of literature on this subject is tremendous and it has become almost impossible for a busy man to keep up with it. Not only is the amount of literature too large for easy consumption but the reader finds that every operation, as well as medical treatment, has its own modifications and variations. This of course means that we are still striving for perfection and with every change we learn something more, whether the new procedure is adopted or whether it is finally discarded.

Probably a rather small percentage of patients with diseases of the stomach require an operation but there are certain conditions which we recognize as requiring surgical intervention. This paper, therefore, is a review of the basic requirements and the fundamental procedures used in overcoming

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the following conditions: (1) foreign bodies; (2) injuries; (3) abnormalities; (4) obstruction due to caustic substances; (5) cancer; (6) ulcer (perforation, obstruction, failure to respond to medical treatment or hemorrhage).

FOREIGN BODIES

Gastrotomy is an early operation. Crolus is said to have removed a knife from a stomach as long ago as 1602, and numerous references to this operation are seen in the early literature. The average foreign body such as a nail, pin or even a marble will usually pass through the pylorus and on down the intestinal tract without causing any trouble. Its course can be followed by means of the roentgen ray and the patient's mind, or the parent's mind, set at ease. If the article fails to leave the stomach and causes any pain, indigestion, bleeding or other gastric upset the wise thing to do is to open the stomach and remove the article. However it is really surprising how many articles a stomach can retain and present no ill effects. Stomachs of dress-makers have been seen with quite an accumulation of pins. In the years when women wore their hair long it was not uncommon to find a good sized hair ball which had been present for some years before causing any trouble. Insane people sometimes so completely fill their stomachs that there is not room for food and finally these things have to be removed. The stomach heals quickly and the patient then promptly repeats the procedure. The operation is to open the stomach in the avascular portion of the anterior wall, remove the foreign bodies and close the stomach and abdomen again.

INJURIES

Injuries to the stomach such as those caused by a knife or a bullet or a rupture from a blow are emergencies and should be treated as such. The dangers of peritonitis or hemorrhage are real and the sooner the damage can be repaired the better chance the patient has. The posterior wall of the stomach must not be forgotten as bullets and knives easily penetrate the stomach from front to back, especially when it is empty. A blow on a full stomach is particularly likely to cause a rupture that is extensive. The operation is to repair whatever injury has occurred as quickly as possible, clean out any stomach contents and drain the abdominal cavity in the hope that peritonitis will not develop. If hemorrhage has occurred the patient is given transfusions of blood or glucose and saline.

ABNORMALITIES

Abnormalities fortunately are not common in the stomach. Congenital pyloric stenosis of infants is probably the most frequent. This condition is an obstruction at the pylorus caused by a thickening of the wall of the pyloric canal. Within a few weeks after birth the child begins to vomit occasionally. This increases in frequency until it becomes the typical projectile vomiting. The child

begins to lose weight even though its feedings may be changed frequently. The condition of the child becomes rapidly critical unless the obstruction is relieved by a Rammstedt operation which is a longitudinal division of the muscle fibers down to the mucosa. If the operation is not done too late and the dehydration can be corrected the results are good.

Another abnormality which is sometimes seen is a diverticulum of the duodenum. The symptoms are varied and the diagnosis is usually made by roentgen ray. If the pouch does not lie within the pancreas it should be removed; if it cannot be removed a gastro-enterostomy is probably the only other means of giving the patient relief. Cardiospasm and pylorospasm unaccompanied by gross pathology seldom require an operation.

OBSTRUCTIONS

Obstructions due to the swallowing of corrosive substances such as lye or carbolic acid are considered separately from the obstructions due to cancer and ulcers. If the patient lives the esophagus and pylorus are the points affected by scar tissue since these regions are narrow and a comparatively small contraction is accompanied by stenosis either at the inlet of the stomach or the outlet. Stenosis of the esophagus sometimes can be dilated slowly with graduated bougies sufficiently to allow the patient to eat. If this is unsuccessful a gastrostomy is needed and the patient is then able to chew his food and spit it into a funnel attached to the tube to his stomach. If the pylorus is stenosed a gastro-enterostomy is done to short circuit the gastric chyme around the pylorus into the jejunum.

CANCER

Obstruction of the pylorus is most commonly due to cancer or to ulcer and it was an obstruction due to carcinoma that led Dr. Pean of Paris to attempt the first pylorectomy in 1879. He removed the pylorus with its growth and united the duodenum to the lower margin of the stomach. Pean's patient unfortunately died, as did also Rydygier's the following year. Theodore Billroth of Vienna in 1881 was the first man to perform a successful pylorectomy and this operation has since been called a Billroth I.

The need for some operation to relieve obstruction of the pylorus had been recognized for years and apparently this operation of pylorectomy solved the problem. However, about six months after Billroth's successful operation Anton Woelfler, also of Vienna, found a pylorus so bound down by adhesions that it was impossible to remove it and he performed the first gastro-enterostomy. The anterior approach was the one used by Woelfler, that is, the jejunum was joined by anastomosis to the anterior surface of the stomach. In 1885 Von Hacker developed the posterior gastro-enterostomy which is essentially the same operation as is done today.

This same year, 1885, Billroth improved the patient's chances by first performing a gastro-enterostomy and then if possible he would remove the pylorus or, if necessary, part of the stomach with its growth. If the stomach and duodenum could not be reunited he simply closed them up and allowed the gastro-enterostomy to remain. This operation has become known as the Billroth II method.

A pylorectomy (Billroth I) and a partial gastrectomy (Billroth II) were followed by a high mortality, mostly because patients came late to operation and relief from their distress and starvation was all that was expected. The result was that a gastro-enterostomy was frequently done when a partial gastrectomy should have been performed.

In 1911 Polya published his technic for an operation which was a decided improvement over a Billroth II in extensive resections of the stomach. With it resections can be done, even to a complete gastrectomy.

I believe most of us feel that an operation is the only answer to the problem of a diagnosis of cancer. If the growth is removable a Billroth II or a Polya can be done. If it cannot be removed and there is danger of obstruction we can at least keep the patient from starving to death by performing a gastro-enterostomy. However, unfortunately for our patients and ourselves, we are still getting cancers of the stomach at too late a stage. By the time symptoms appear, all too frequently the growth has metastasized to other regions; so it behooves us to grasp at every opportunity to make a roentgen ray examination of the stomach in patients past middle age, and especially if there is the slightest suggestion of indigestion.

PEPTIC ULCERS

Not so many years ago the subject of operation for ulcers was good for an argument in almost any medical meeting, but today we are practically all agreed that there are certain rather definite indications for surgery.

Perforation of an ulcer is undoubtedly a definite catastrophe which usually calls for a laparotomy as soon as the diagnosis is made or even if there is any possibility of this condition being present. The patient is frequently in shock and if there has been any vomiting there is more or less dehydration present. These must be combatted with heat, sedatives and intravenous glucose and saline. The patient is usually too ill to stand an extensive operation so the perforation is closed with interrupted sutures, or if there is danger of obstructing the pylorus a graft of omentum is tied over the opening. The abdominal cavity is cleaned out, drained and closed.

Obstruction is one of the serious complications of a peptic ulcer near the pylorus and is most pronounced at the height of the attack. Often as the attack clears up the obstruction becomes less pronounced only to reappear with the next return of

activity of the ulcer. At times this complication of obstruction is interpreted as being the most important part of the disease and a gastro-enterostomy is done purely for relief of the obstruction. If the ulcer can be treated by rest and alkalies sometimes the edema and spasm due to the irritation of the ulcer will subside sufficiently to allow the patient to be treated medically with a successful result. If however the obstruction is due to scar tissue rather than to edema treatment of the ulcer will not help the obstruction and a gastro-enterostomy is indicated.

Failure to respond to thorough and intensive medical treatment was mentioned concerning obstruction, but it also applies to cases with no such complication. If the patient after a fair trial of a medical regime fails to be relieved of his pain there is only one thing left for him to do and that is to submit to an operation. For years a gastro-enterostomy has been done and has resulted in a great majority of patients recovering and staying free of their ulcers. There is a certain percentage of patients however who do have recurrences and there is a growing feeling that a partial gastrectomy should be done, especially if there is a high gastric acidity.

Hemorrhage is a major problem in peptic ulcers. A large majority of patients who have hemorrhage do get well, but there is a small number who die no matter what is done. If the patient does not respond to frequent transfusions, or has several massive hemorrhages which endanger his life, a desperate attempt is probably justified as the patient is going to die anyway. The phrase "desperate attempt" is used because any patient who has had a severe loss of blood is a poor surgical risk and if it is at all possible to improve the patient's condition by transfusion this is done and the operation deferred until he is better able to stand it.

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DILATED PUPIL IS A SIGN OF INJURY

A dilated and fixed pupil is usually the earliest sign of injury (on the same side) to the nerve controlling the movements of the eye, William Lister Reid, M.B., and William V. Cone, M.D., Montreal, Canada, point out in *The Journal of the American Medical Association* for May 20.

A hernia of a certain part of the brain (the hippocampal gyrus) can cause enough pressure and therefore injury to this nerve to paralyze it. Tumors or injuries (blows, falls and the like) sufficient to alter the blood circulation often cause herniation of this part of the brain.

The authors state that if the significance of this sign is appreciated, early treatment by operative removal of the offending lesion may prevent other complications, such as paralysis of the muscles of the eye, drooped lids, unconsciousness and eventual death.

RADICAL SURGICAL RESECTION FOR HIGH LYING MALIGNANT LESIONS OF STOMACH

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Radical resection for malignant disease of the stomach has become a standard procedure. As yet, however, many cases with high lying lesions are denied the advantages of this operation because it is assumed that the lesion is too large and in such inaccessible position that it seems inadvisable to make the attempt. Since the operation of total gastrectomy has been performed in many instances with reasonably satisfactory results, considering the magnitude of the procedure, it has proved definitely that malignant disease lying high in the stomach is accessible to surgery with a correspondingly better result and with a lower operative mortality than in those requiring the complete removal of the stomach. It becomes equally important, therefore, to perform the radical operation of extensive subtotal resection of the stomach for malignant disease as for the simpler procedure of partial gastrectomy for lesions located in the accessible prepyloric region. The indications for the extensive subtotal gastrectomy result from large ulcerative lesions in the midportion of the stomach, for prepyloric lesions with glandular metastasis along the lesser and greater curvatures and for benign ulcerative or primary malignant ulcerative disease lying high on the lesser curvature or on the posterior wall of the stomach. There is a large group of malignant disease that occurs in the midportion of the stomach which grows well into the viscus and produces large ulcerative, cauliflower growths. These lesions are usually sharply demarcated but may be associated with a surrounding area of inflammatory reaction. They do not have a tendency to invade the serosa of the stomach and therefore the glandular involvement associated with them is frequently found to be inflammatory. Inflammatory reactions may cause fixation of the cancer to the capsule of the pancreas or the under surface of the liver thereby giving the impression of inoperability. On further investigation this fixation is often found to be inflammatory and not due to malignant extension. These lesions sometimes grow to the size of the palm of the hand and give little or no gastric symptoms as the physiology of the stomach is not disturbed.

There are likewise many cases that present a prepyloric primary lesion which has invaded the serosa with secondary glandular extension along the lesser and greater curvatures that require extensive subtotal gastrectomy. The glands in such instances are usually malignant due to direct serosal extension. It becomes, therefore, all the more important to remove adequately all the gland-bearing

tissue by extending the resection of the stomach to a degree sufficient to accomplish this purpose.

Benign ulcerative lesions or primary ulcerative malignant disease lying high on the lesser curvature or on the posterior wall of the stomach require the removal of a large portion of the stomach if resection is to be carried out. It is important to remember that ulcerative lesions in the stomach which apparently appear benign may in reality be primarily malignant and should always be considered as such until both symptomatic and radiologic evidence prove otherwise. It is, therefore, essential that lesions of this nature should be observed carefully and checked frequently by radiological studies over a period of several weeks. If at the expiration of that time there is no evidence of healing by radiological investigation the condition should be assumed to be malignant and excised. Immediate microscopic examination should be made of the excised ulcer and further steps toward radical surgery instituted if the result of this examination indicates such a procedure. Exploration and excision of the ulcer are justified because of the intractable nature of the disease as demonstrated by failure of the ulcer to heal after several weeks of adequate medical management. The simple procedure of local excision under such circumstances may make unnecessary a more formidable one at a later date if the growth is benign and affords a more favorable prognosis in the event of malignancy.

The symptomatology of these lesions bears a definite relation to the character and position of the disease.

Large ulcerative growths that lie well back in the midportion of the stomach produce few or no gastric symptoms until the cancer has become well advanced. There may be associated with this condition loss of appetite, a feeling of weight and heaviness in the stomach and manifestation of gas and vague discomfort, but there is no vomiting or regurgitation until the disease has been present for a number of months.

The physical signs are those of failing health, secondary anemia and cachexia. Secondary anemia results from the chronic oozing of the breaking down process and cachexia from the absorption of the byproducts of decomposition, the associated infection and poor nutrition.

The symptomatology of malignant disease in the prepyloric region of the stomach is largely that of gastric retention resulting from disordered gastric function. Early manifestation of disturbed physiology is present, evidenced by gas, distress, regurgitation and ultimately vomiting from pyloric obstruction. Early anemia is not a factor as these lesions have a tendency to invade the wall of the stomach and do not grow into the stomach and break down or bleed. Therefore, anemia is not an early pronounced manifestation.

The symptoms of a small malignant lesion that lies high on the lesser curvature of the stomach

may be those of gastric ulcer. Early in the history of these ulcerative malignant lesions marked symptomatic relief may be obtained by medical management thereby giving a false assurance that the condition is benign. It is unwise, therefore, to assume that because of symptomatic improvement an ulcerative lesion of the stomach is benign. No assurance can be assumed that an ulcerative lesion of the stomach is benign until it has been checked adequately by radiological investigation over a sufficient period of time to show that definite healing is taking place. Walters¹ and Lahey² have emphasized the importance of this procedure and the possibility of an apparently benign lesion being a small primary malignant ulcer.

Laboratory examination in malignant disease of the stomach is not significant or diagnostic. Acid is present in the early stage and gradually disappears as the disease advances. Occult blood may be present in the gastric contents and stool but frank hemorrhage is rarely a symptom of the disease. Achlohydria, lactic acid, Boas-Oppler bacilli and coffee ground vomitus represent a breaking down process and the advanced state of disease.

There are no early signs and symptoms significant of cancer of the stomach whereby the diagnosis may be made clinically. Positive clinical manifestations occur late in the disease. It becomes important, therefore, that careful fluoroscopic and radiologic examination should be made by a competent radiologist early in the history of any gastric disturbance that occurs in individuals approaching the midperiod of life who formerly have had no gastric disorder, or in persons who have a long history of gastric distress for which medication that formerly gave relief no longer does so. It may be necessary however to have radiologic investigation checked and rechecked over a period of a few weeks to study the nature of the lesion. Insistence, therefore, must be placed upon the early radiologic investigation of suspected gastric disease as frequently as it is deemed advisable. Through the early careful study of these cases by this means malignancy can be diagnosed usually at a time when radical surgery can give a greater assurance of prolonging life or permanent cure. At the present time most malignancies of the stomach have been present for from nine to ten months before they are subjected to surgery and therefore the operability of most of them is reduced to approximately 30 per cent. This is a marked improvement over the observations of Friedenwald who in 1914 reviewed personally 1000 cases and found that in only 3.3 per cent was it possible to do a resection.

Roentgen ray is of inestimable value in the diagnosis of malignancy but according to Walters may be misleading from the standpoint of determining operability in approximately 10 to 15 per cent of cases. Therefore, exploration should be made on all individuals in a physical condition suitable for this procedure and without metastatic

contraindications regardless of age. It has been proved repeatedly that age is no contraindication for radical surgery. Many individuals of advanced years stand formidable procedures of this nature as well as younger persons.

Definite indications of inoperability are lesions extremely high in the fundus of the stomach, large lesions that are definitely fixed, a large nodular liver with or without ascites or jaundice, infiltration of the umbilicus, infiltration of the rectal shelf and fixed firm glands above the left clavicle.

The preoperative preparation of the patient is most important. Many of these patients have pronounced anemia, dehydration and the stomach is markedly dilated. The anemia and dehydration can be overcome by transfusions and intravenous fluids and the tone of the stomach can be restored by frequent gastric lavage. The infection from putrefaction and decomposition within the stomach can be greatly reduced by the administration of hydrochloric acid and lavage of the stomach with $\frac{1}{4}$ to 1 per cent solution of hydrochloric acid as recommended by Horsley.³ The glycogen reserve can be restored by the administration of glucose.

Operation is performed best under high spinal anesthesia or by local infiltration of the abdominal wall plus splanchnic anesthesia as advocated by Finsterer.⁴ Inhalation anesthesia may be employed on individuals in whom it is not contraindicated by respiratory complications. Of these cyclopropane, because of the high percentage of oxygen with which it is administered, has proved satisfactory. Ether still stands as a safe and satisfactory anesthetic. It affords excellent relaxation and there is little or no danger when cautery excision is desired.

Gastro-enterostomy has little or no place in the surgical treatment of cancer of the stomach even though the lesion is inoperable, and never in those that are resectable. It is better in inoperable malignant growths to divide the stomach proximal to the lesion, close to the distal end and anastomose in some manner the proximal end to the jejunum. Life is thereby prolonged, the patient made comfortable for a longer period of time than with gastro-enterostomy and ultimate death is by liver metastasis rather than by starvation and vomiting from malignant obstruction.

The operation for a high lying gastric lesion is best performed through a left rectus or left paramedian incision as this affords an approach which cannot be obtained by a right side or midline incision. Adequate relaxation is essential, else the lesion may be thought to be inoperable due to poor relaxation of the abdominal wall. A thick abdominal wall and a large fat omentum may present mechanical difficulties. The omentum may be removed which materially facilitates the procedure. A careful examination should be made at exploration in search of metastasis. The mesocolon may be resected if involved when the circulation is unimpaired. Care must be exercised to determine

the extent of involvement and to ascertain whether fixation is inflammatory or malignant. Malignant invasion of the pancreas must be definitely eliminated before resection is undertaken.

Many procedures for radical resection of the stomach may be employed and surgeons have certain preferences based upon experience and results.

Horsley⁵ prefers a modification of the Billroth I type of anastomosis and finds it adaptable to extensive resections. The advantage of maintaining the normal relationship of the stomach and duodenum and the elimination of possible gastrojejunal ulcer is of considerable importance. The procedure must be performed without suture tension and an adequate stoma must be established between the large stomach opening and the smaller duodenal opening. This is accomplished by plastic surgery upon the duodenum.

The Polya type of resection with retrocolic anastomosis answers the purpose adequately in most instances. It may be modified according to indications by placing the anastomosis anterior to the colon as advocated in certain instances by Balfour or a portion of the lesser curvature may be closed in extremely high resections and the remaining distal end of the stomach anastomosed to the jejunum by either the retrocolic or anticollic method as recommended by Hoffmeister. The anticollic anastomosis is more certain of better functional results if an entero-anastomosis is likewise performed. Each case has to be judged upon its merits depending upon the extent of the resection and the facility of approximation and anastomosis. For high resections there is no better method than the Polya procedure or some principle of it. It affords a wide anastomosis and local recurrence rarely results in obstruction.

Adequate closure of the duodenal stump is essential after which it should be covered by omentum and buried into the fascia of the pancreas. There is considerable intraduodenal pressure from the retention of bile within the duodenum. This pressure may be sufficient to rupture the duodenal stump unless it is adequately closed and protected by omental grafts. It is rarely necessary to perform enterostomy for feeding purposes unless the operation consists of a total gastrectomy in which event it is advisable.

CONCLUSIONS

1. Total gastrectomy has demonstrated the feasibility of radical subtotal resection for high lying malignant lesions of the stomach. Position of the lesion or glandular invasion determines extent of resection.

2. Careful evaluation and investigation of early gastric symptoms is essential to early diagnosis and successful resection.

3. Gastric ulcer cannot be considered benign until proved by radiographic study over a sufficient period.

4. Primary ulcerative malignant lesions may sim-

ulate gastric ulcer and temporarily respond to treatment.

5. Careful fluoroscopic and radiographic studies are essential to early diagnosis.

6. The roentgen ray does not always determine operability.

7. Exploration is advisable unless positive contraindications are present. Age is no barrier.

8. Type of operation depends upon personal preference of surgeon and local condition of lesion.

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DISCUSSION

DR. J. W. THOMPSON, St. Louis: Dr. Hunt and I have always seen eye to eye on the subject of cancer of the stomach. The diagnosis of gastric cancer is amazingly difficult at times. The sardonic fact that one of the foremost men in the world in the diagnosis of gastric cancer failed to recognize early symptoms in himself is a sad commentary upon the difficulties attending this particular lesion.

Oftentimes our results in the most difficult cases are very gratifying. We will see a patient in whom there should be a fairly good result, where the prognosis is quite hopeful, and that patient all too often gets early metastasis ending in the usual fatal way. At other times an extremely difficult case will show astonishing results. These cases encourage us to carry on and to come to state medical meetings and keep studying this problem.

It is absolutely unjustifiable to assume a fatalistic, helpless and hopeless attitude of mind in dealing with gastro-intestinal cancer. It is possible to cure approximately 50 per cent (for five years) of those cases operated on before lymph nodular extension has occurred. The apparently hopeless case is very frequently afforded comfortable palliation for valuable periods of time up to three years or longer. This is extremely significant and, as Dr. Hunt stresses, no other treatment offers any help whatsoever. The surgeon who deals with gastro-intestinal cancer must be a man with optimism and courage.

I wish to review briefly two cases which admirably demonstrate the value of radical surgery in the treatment of gastric cancer.

Case 1. Miss L. R., middle aged, presented herself with symptoms of anorexia, loss of weight and increasing weakness. Roentgenogram showed a large malignant ulcer crater high on the lesser curvature. Total gastrectomy was performed in December, 1935. The end of the esophagus was anastomosed to the side of the jejunum with an entero-anastomosis between the ascending and descending loop of jejunum. A tube was placed in the jejunum for feeding until the anastomosis had completely healed. Patient made an uneventful recovery and enjoyed eighteen months of comfortable life before finally succumbing to cancer.

Case 2. R. B., a man of 50, had a large carcinomatous ulcer occupying the middle third of his stomach. At operation in July, 1931, regional lymph nodes were found involved and there were peritoneal implants of cancer cells on the wall of the transverse colon and its mesentery. In order to eradicate all malignant tissue it was necessary to perform subtotal gastrectomy and resect a segment of the transverse colon together with

a wedge shaped segment of transverse mesocolon. A posterior Polya type of gastrectomy was done. The resected ends of the transverse colon were united in an aseptic manner using Rankin's three-bladed clamp. The patient made an uneventful recovery and has remained well for almost seven years.

These two patients unquestionably prove the value of radical surgery for gastric cancer in the group of cases forming the basis of Dr. Hunt's presentation. It is exceedingly worth while to carry on this important work. Dr. Hunt is to be complimented for his continued efforts.

DR. D. A. ROBNETT, Columbia: I want to commend Dr. Hunt for the beautiful work he is doing, and this is also true of Dr. Thompson. If we are to get anywhere with our cancer problem it will be through the determination and courage of these men who are rewriting the treatment of cancer in different parts of the body. Stomach surgery has been rewritten in the last ten years and if we are going back to stomach surgery as it existed a few years back then we will not have any of the cases discussed today. The slides have demonstrated the great possibilities of cases that looked hopeless before exploration proved the growths operable, and some were inflammatory and the patients saved.

These results justify the work of these men and justify our cooperation and consideration to give these men courage and confidence. Eventually it will be the means of getting these patients early. Until then exploratory operation will save quite a few of the advanced cases.

EPENDYMOMA

A CASE STUDY

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AND

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The observation has been made by authorities on brain tumors that those arising from the ependymal cells are rare. That this statement is true is borne out by the fact that in several large series of brain tumors which have been studied, ependymomas constitute only a small percentage of the total number.

In 1924 Bailey¹ reviewed a series of 868 cases of verified brain tumors and found six of the group which he considered to be ependymomas. In 1925, in the French literature, he reported fifteen cases of ependymoma. Bailey in 1927² again reported a series of 566 gliomas from Cushing's clinic, of which sixteen were ependymomas. Prior to Bailey's article in 1924 several ependymomas were reported. In 1902 Saxer reported five cases and Mallory reported three cases. Spiller reported a case in 1903 and another in 1907. Roussy, Lhermitte and Cornil described a group of ependymogliomas in 1924 which Penfield considers ependymomas. Hirsch and Elliott submitted two cases in 1925 and Orlandi one. Silverberg reported one in 1926. Fincher and Coon³ in 1929, from a series of 140 gliomas in Sach's clinic, found eight to be of ependymal origin. In a study of 210 verified gliomas, Elvidge, Penfield and

Cone,⁴ in 1935, classified nineteen as ependymomas. Kernohan and Fletcher-Kernohan⁵ published a report of 109 ependymomas which they had studied.

In their classification of gliomas, Bailey and Cushing⁶ described both ependymomas and ependymoblastomas which later Bailey classified under the head of ependymomas. Kernohan and Fletcher-Kernohan divided ependymomas into four subgroups because of various microscopic differences present in these neoplasms.

The ependymal cells which line the ventricular cavities of the brain and the spinal axis where it remains patent are the cells which are involved in the development of ependymomas. These cells vary in size, shape and consistency in these various locations but there are some definite inherent characteristics which they have in common. Histologically each cell consists of a round or oval nucleus with a definite limiting membrane, protoplasmic granules, a fibrous process, usually unipolar, possesses cilia below which in the cytoplasm are dark, deeply staining granules which are round, oval, elongated or rod shaped, even resembling bacilli, which have been termed blepharoplasts.

The gross pathology of ependymal neoplasms would seem to vary considerably with the different locations of the tumors, but in each there are certain important and definite features. The color usually shades from grey to greyish pink. The surface frequently presents small cysts. Lobulations are common as are also small nodules. The tumor is usually vascular. Size is variable. The majority are located in the posterior fossa, arising from the floor of the fourth ventricle. The neoplasm may be large enough to block the ventricle partially or completely, obstructing the flow of cerebrospinal fluid. The consistency of these tumors is in most cases rather soft. They are described as being encapsulated, frequently encroaching upon the normal brain tissue and displacing and compressing it markedly.

In the histological subdivision of Kernohan and Fletcher-Kernohan they describe one type which is characterized by a special secreting type of cell lining the choroid plexus, considered by some as an individual type of tumor. The other three types, (a) epithelial type, (b) cellular type and (c) myxopapillary type, have been discussed at great length in their recent article, giving individual characteristics of each with a general conclusion that ependymomas are made of two, or often all three, types of ependymal cells.

In the epithelial type the cells arrange themselves in canals. They usually grow side by side as does columnar or cuboidal epithelium, giving the general impression of a rosette formation. They do not possess cilia but nearly always contain blepharoplasts in the cytoplasm. The rosettes are surrounded by tumor cells which have processes projecting into the stroma which do not branch and contain no neuroglia fibrils. In the second or cellular type there is frequent mingling with the

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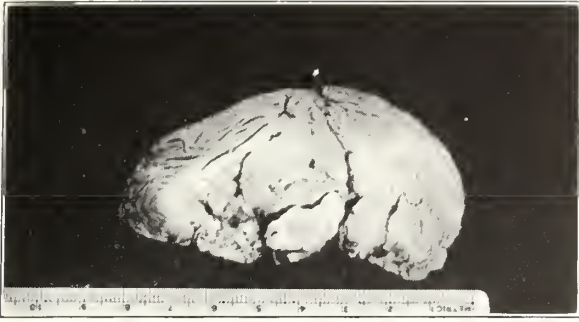


Fig. 1. Showing sagittal section of tumor which lies in the left cerebellar hemisphere in the roof of the fourth ventricle, showing distortion of anatomical relationship.

myxopapillary and the epithelial types. They have large nuclei and chromatin which stains deeply and collects in large granules. Their cell processes contain no neuroglia fibrils and frequently point into a common center where no blood vessels are found to form pseudorosettes. The myxopapillary type occurs anywhere along the cerebrospinal axis but most commonly in the sacral region of the cord. These tumors resemble somewhat the papilloma of the choroid plexus. Myxomatous degeneration is present in the papillae and may even destroy all the connective tissue markings usually present. Blepharoplasts are usually demonstrable in the cytoplasm. The cells have large, oval, vesicular nuclei.

In the microscopic sections of ependymomas there are certain findings of diagnostic value. The cells are of polygonal shape, the nucleus is deep staining and not of constant size or shape being most frequently large and round or oval. In the clear cytoplasm are deep-staining granules which assume round or rod shapes, the blepharoplasts. The cell borders are often indistinct. Cilia and cell processes are usually not demonstrable. Astrocytes and polar spongioblasts are generally distributed in varying numbers throughout the stroma which is essentially connective tissue in greater or lesser amounts; occasionally small pink-staining calcified areas are seen.

In the series reported we find the majority of these tumors have been studied clinically before operation and that post-operative results are variable. Fincher and Coon report two cases to have died on the operating table and one to have been free of symptoms for nine and a half years and in good health at that time. These tumors are considered to be more prevalent during childhood but this is not a constant finding, the youngest patient being 16 months, the oldest 59 years of age. In the series studied by Elvidge, Penfield and Cone the average ages were: cerebral cases 28.8 years; cerebellar cases 21.9 years, and spinal cord and cauda equina cases 40.7 years, with survival periods ranging from two to five years. Kernohan and Fletcher-Kernohan reported four patients to have been living for a period of fifteen years and still in good health.

It has been observed that ependymomas are slow-growing tumors, the degree of malignancy being more or less in accord with the microscopic type of tumor and its location. Those in the cranial cavity grow more rapidly than the ones found in the spinal cord or caudal region.

There obviously can be no definite set of symptoms which characterize the presence of an ependymoma. Frequently, however, the patient complains of headache, nausea, vomiting, visual and locomotor disturbances, all of which may be associated with many other pathological processes. One valuable diagnostic aid, when present, is the finding of areas of calcification in the posterior fossa in roentgenogram. The final diagnosis of ependymoma is usually made from material obtained at operation or at autopsy.

REPORT OF CASE

E. F. F., white female, aged 1 year, was admitted to Research Hospital at 11:00 a. m., October 29, 1937, carried by father. History from mother: For five weeks before admission the child had had projectile vomiting at intervals during the day, usually after meals when playing but occurring even during sleep. For three weeks she had been somewhat constipated. For a month convergent strabismus had been present with weakness in right eye. The patient had frequent convulsions during this illness. Had been fed from breast supplemented with raw cow's milk, potatoes and gravy. Previous to present illness had never been ill. Was normal full term baby with no apparent birth injury. Weight at birth was 8 pounds. Has been gaining steadily to present weight of 22 pounds.

On physical examination the baby appeared well nourished and well developed, lying quietly in bed with no apparent acute illness. The head showed no gross abnormality. There was weakness of the right internal rectus muscle resulting in convergent strabismus. Heart and lungs were normal and clear. Abdomen was soft and flat with no apparent distention or enlarged palpable organs. No spasticity, no clonus and no twitching of the muscles of the extremities. No stiffness of the neck. Blood count was hemoglobin 80 per cent; red blood cells 4,710,000; white blood cells 17,500 with 75 per cent polymorphonuclears. Cerebrospinal fluid appeared mildly opaque, all tubes bloody; no xantho-

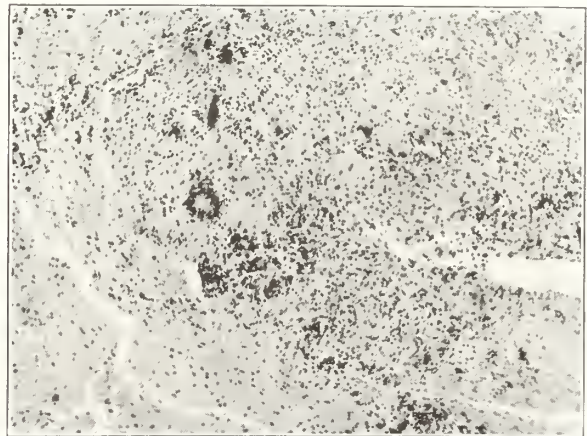


Fig. 2. Photomicrograph (low power) of tumor, showing rosette and pseudorosette formation and cells with ill defined cell border and deeply stained nuclei which are characteristic of ependymoma.

chromia; globulin negative; colloidal gold 145,543,220-0; cell count 58 with 39 per cent polymorphonuclears and 61 per cent lymphocytes; sediment stain showed no bacteria.

Progress.—The patient was examined shortly after admission following which she was quite restless. Took two ounces of formula brought in with patient and immediately went to sleep. Spinal puncture was done at 4:00 p. m. and the fluid found to be under 40 mm. Hg. pressure. At 5:30 p. m. the baby was more quiet with weak pulse. Did not seem able to swallow milk. At 8:30 p. m. rectal temperature was 100 F. pulse weak and rapid. The baby's condition gradually became worse and she expired at 9:10 p. m.

Autopsy.—When the skull was opened some increase in the amount of cerebrospinal fluid was noted; the fluid was slightly opaque. The external surface of the brain was smooth and grossly normal in all respects. Section of the brain showed the presence of a large soft mass replacing most of the left cerebellum and extending into the fourth ventricle, apparently almost completely blocking the lumen. The ventricle was considerably dilated. The tumor was soft, not circumscribed and measured approximately 6 cm. in diameter, was pinkish grey in color and appeared to be quite cellular. There was no evidence of hemorrhage. Both lateral ventricles appeared to be moderately dilated; otherwise the brain was grossly normal.

Microscopic sections showed normal brain tissue invaded by tumor cells with no definite line of demarcation between the two types of cells. The tumor was composed of polygonal cells with poorly defined cell borders. The size of the nucleus in each cell was variable but generally larger than normal, the shape round or oval. Staining reactions were medium heavy to heavy. Well defined deep staining structures were present in the cytoplasm of many of the tumor cells, some of which resembled bacteria and were interpreted as blepharoplasts. No mitotic figures were seen in our sections. There was only a minimum of connective tissue present. Special staining methods failed to reveal the presence of cell processes or cilia. In certain areas there were vascular spaces and central canals lined with these cells, giving the appearance of rosette and pseudorosette formation. In the areas we describe as rosettes the cells were usually in single layers around the central canal or vascular space. In the cells there were deeply staining bacillus-like rods in the clear cytoplasm just beneath the cell membrane which we interpreted to be the blepharoplasts. There were some cells which resembled astrocytes seen throughout the sections. The

tumor was only slightly vascular with occasional areas of hyaline degeneration.

Sections of this tumor were sent to Bailey who described it as a neuroepithelioma. Cone and Kernohan each received sections and both described it as ependymoma.

SUMMARY

In view of the fact that we have only one case to report we are not in a position to make definite conclusions as to the pathology of ependymomas. We do feel that in this case we were dealing with a tumor of ependymal origin apparently arising from the floor of the fourth ventricle even though this is an infiltrating neoplasm whereas the ependymoma is characteristically encapsulated. We support our opinion by the finding of ependymal cells arranged in rosette formation, the presence of blepharoplast granules in the cytoplasm of the cells, the areas of hyaline degeneration and astrocytes, all of which are characteristic of these neoplasms.

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SULFANILAMIDE'S SUCCESS IN DISEASES OF EYE DUE TO RAPID PENETRATION

The effectiveness of sulfanilamide in treating certain diseases of the eye is undoubtedly due to the fact that the drug penetrates the optic tissues and fluids fifteen minutes after being taken by mouth. John G. Bellows, M.D., and Herman Chinn, Ph.D., Chicago, state in *The Journal of the American Medical Association* for May 20.

With the exception of the lens, all the eye tissues and fluids attain their maximal concentration at about the sixth hour after administration. In the crystalline lens the peak is reached in about twelve hours. By far the most rapid rise in concentration occurs between the second and the third hour.

The daily administration of sulfanilamide given in two divided doses maintains practically the same level of concentration in the eye as the same quantity administered four times a day. Consequently the taking of the drug every twelve hours should be almost as effective as every six hours.

Since sulfanilamide taken by mouth penetrates into the eye so quickly and the levels attained are so high, there is little reason to give it by any other route when diseases of the eye are treated.

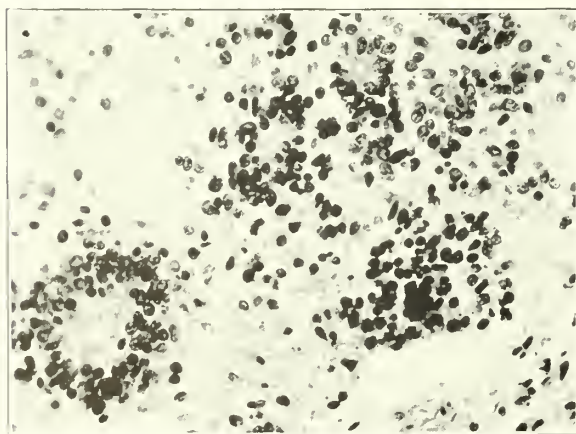


Fig. 3. Same section, high power, with dark, deep staining granules in the cytoplasm of the cells which make up the rosettes. The cell processes are not shown in this section.

STAPHYLOCOCCUS CELLULITIS OF THE FACE

PROPHYLACTIC TREATMENT WITH REPORT OF CASES

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In a previous report we¹ stated that the exotoxin of the staphylococcus was of prime importance in the production of cavernous sinus thrombosis following infection in the so-called danger area of the face.

It would serve no useful purpose to enumerate the sequence of events by which one may diagnose thrombophlebitis of the cavernous sinus. It is our feeling that once the cavernous sinus is involved one is dealing with a generalized septicemia which is past surgical intervention. We do wish to state, however, that there may be some possibility of staying the infection in its course from its original focus to the cavernous sinus.

There are many anatomicophysiological reasons why infections in this area are particularly dangerous. First, the skin of this area of the face is always exposed to the elements and is easily accessible to the patient, so any small blemish is an invitation to meddle and squeeze with the result that a local thrombophlebitis becomes disseminated. Also, the skin in this location is thin and the particularly rich vascular supply is more superficial than anywhere in the body and the veins in this region have no valves. And, as has been so admirably pointed out by Turner and Reynolds² and also by Campbell³ and others, there is a direct connection between the superficial and deep extracranial circulation with the cavernous sinus within the skull.

Added to these considerations is the fact that there is more or less motion of the muscles of this region which militates against the limitation of the infection. It is significant, in this connection, that of the eighty-eight cases of facial furuncle tabulated by Rudolf Dittrich twelve were located on the nose of which one or 8 per cent was fatal; whereas when the upper lip was involved in forty cases four or 10 per cent had a fatal outcome. Of the 103 cases of facial furuncles reported by Richard Morian from the clinic of Prof. E. Payr 10.7 per cent were fatal. Of the twelve on the nose one or 8 per cent terminated fatally while of the forty-eight on the upper lip seven or 14 per cent were fatal.² Therefore, there can be no argument that all lesions of the danger area are formidable but those of the lip are more grave than those of the nose and that incision enhances the danger of mischance.

Hallman⁴ has reported that 40 per cent of persons over 19 years of age and 60 per cent of persons

under 20 years who have no evidence of infection in the nares or the staphylococcal infection elsewhere, harbor pathogenic staphylococci in the nares; and in the presence of active nasal infection this percentage is higher. This alone may account for the fact that furuncles are so common in this area and slight abrasions may be the nidus for an early pyogenic lesion which after minimal trauma may become a diffuse cellulitis of the face with phlebitis.

REPORT OF CASES

Case 1. A child, aged 7 years, entered St. Joseph's Hospital October 18, 1936. Six days previously the patient had fallen and cut the upper lip which was sutured and healed normally. The sutures were removed on the fifth day and dressing applied to wound with adhesive tape which the patient forcibly removed and scratched the wound with the fingers. The next day patient was brought to the hospital with the upper lip red and indurated with swelling extending from the upper lip to both eyes. Within the area of swelling there were red streaks about 1 cm. in width which felt like cords. Admission temperature was 97.8 F., pulse 120, respiration 24. Red blood cells were 4,200,000 and white cells 16,050 with 85 per cent polymorphonuclears. Ten thousand units of staphylococcus antitoxin were given intramuscularly on admission. On October 19 patient appeared more sluggish and drowsy and 10,000 more units of antitoxin were given. The following day the edema of the face had receded, the patient felt quite well and the temperature became normal on October 21 and remained so. Patient was discharged from the hospital on October 29. Cultures from the local lesion revealed a staphylococcus aureus whose toxin produced complete hemolysis of washed rabbit red blood cells in a dilution of 1 to 300. The patient's blood showed no protection.

Case 2. A child, aged 13 years, was admitted to St. Joseph's Hospital on May 10, 1937, with the history that on May 7 a small boil appeared on the left side of the nose. It caused little trouble until May 9 when swelling was noted on left side of face and cheek and a left sided throbbing headache of the frontoparietal region which had subsided on the morning of May 10. He had chilly sensation with no chill. The physical examination showed a normal patient except for swelling of left side of the nose, left cheek and forehead. Temperature on admission was 99.2 F. which rose to 101; pulse varied between 70 and 120. On morning of admission 20,000 units of staphylococcus antitoxin were administered, 10,000 units intravenously and 10,000 units intramuscularly without reaction. That evening 20,000 units of antitoxin were repeated intravenously after which the patient had a reaction. On the next day patient was given 20,000 units of staphylococcus antitoxin intramuscularly. The infection promptly subsided. Patient was dismissed from hospital on May 13. Patient's blood showed no protection before the administration of antitoxin.

Case 3. Woman, aged 22 years, entered Menorah Hospital January 19, 1938, with the history that for the last three days she had a furuncle in the medial portion of the left eyebrow with intense headache that could not be controlled with morphine. Headache was so intense that the patient vomited. She had swelling of both eyes and of the forehead. No neurological findings except the agonizing headache. On admission the lesion on the forehead was about 2 cm. in diameter, indurated and no tendency to localization. The lids of both eyes were edematous. On admission the white blood cell count was 11,300 with 78 per cent polymorphonuclears which rose to 16,400 white blood cells with 85 per cent polymor-

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phonuclears; highest temperature in hospital was 100 F. Because there was no tendency toward localization 10,000 units of staphylococcus antitoxin were administered on January 20. Roentgen therapy was given on January 19 and 20. Following administration of antitoxin and roentgen ray the lesion localized and evacuated spontaneously and the patient was dismissed on January 21. A hemolytic staphylococcus was isolated from the local lesion and the patient's blood showed no protection before the administration of antitoxin.

Case 4. A man, aged 34, entered the University of Kansas Hospital February 13, 1938, with a history of swelling and redness of the left cheek. He was perfectly well up to the previous day when he first noted swelling on his cheek just left of the nose. On February 11 he had a small pimple at the site of the swelling about 2 cm. to the left of nares. Swelling was not painful or tender since onset and redness of skin under the left eye appeared on the morning of admission. Patient stated he had a carbuncle on chin fifteen years before and also a furuncle at the site of the present infection in 1925. Physical examination showed swelling and induration to the left of nose and on the cheek with redness of the skin under the left eye. Temperature on admission was 98.8 F., pulse 100, respiration 20, white blood cells 8250; temperature rose to 101 with white blood cells 11,500 with 81 per cent polymorphonuclears. Immune titer of blood measured (by Parish method) on February 13, before any antitoxin administration, showed no antihemolysin and 20,000 units of staphylococcus antitoxin were administered. On February 14 the antitoxin was repeated and antihemolysin titer rose to 1 to 6. Following the last antitoxin the temperature became and remained normal. Patient dismissed on February 15.

Case 5. A man, aged 34, entered Research Hospital on August 31, 1937, with the history that three days previously he had pulled a hair from his nose and on the following day the nose became sore. On the third day following the pulling of the hair patient noted a brown, bloody fluid coming from the left side of the nose and the nose was swollen and tender, the swelling extending to the left eyelid. On admission to the hospital temperature was 102 F. which rose to 104 following a chill. The blood count on admission was 6650 white blood cells with 85 per cent polymorphonuclears. Because of the history, 20,000 units of staphylococcus antitoxin were given intramuscularly upon admission

and 10,000 units given on the same evening. On the following day patient appeared toxic and drowsy and there was more edema of the left eyelid; 40,000 units of staphylococcus antitoxin were repeated the following day. The total amount of antitoxin was 90,000 units over a period of three days. The edema subsided rapidly and temperature was normal on the fifth day. The blood culture was negative for organisms but from the local lesion a hemolytic staphylococcus was obtained.

Case 6. A man, aged 38 years, entered the Kansas City General Hospital on November 21, 1937, with the history of being perfectly well until about November 1 when he noted a painful pimple on the end of his nose. For several days the nose gradually became more swollen and the patient squeezed some pus from both sides. About November 7 patient noted pain in the right eye associated with burning and itching. Later he had blurred vision and found the eye was not movable and that it took on what he described as a "stare" appearance. The pain and immobility continued until November 20 when there was extreme swelling of the right eye which prevented the opening of lids associated with severe pain in the head. Patient also has noted slight pain in the left eye with swelling of the left eyelid. For the last two days has had chilly sensations. The patient had walked into the hospital. Physical examination on admission revealed a well developed and well nourished white man who has a slow speech but tries to cooperate. Temperature on admission was 104.6 F., pulse 96; respiration 22. There was diffuse chemosis of right eye with bluish discoloration of both eyelids. There is proptosis of right eyeball which is fixed; pupil is dilated and does not react to light. The left eye shows swelling of the lids. The left eyeball is movable and the pupil is dilated but reacts sluggishly to light. The tip of the nose is reddened and slightly swollen at the site of the original infection. There are no petechiae. The neck is stiff and the Kernig sign is positive bilaterally.

Course in Hospital.—On admission the patient was given 30,000 units of staphylococcus antitoxin intramuscularly. The following day the right eye showed no improvement and the fundal veins of both eyes were engorged. He was transfused with 400 cc. of citrated blood and 30,000 units of staphylococcus antitoxin administered intramuscularly. On November 4, he was transferred to Research Hospital where daily spinal



Fig 1. (Case 6.) The lesion on the tip of the nose shows no apparent local activity. The right eye is edematous with fixation of the eyeball. The left eye shows edema of lid and chemosis.



Fig 2. (Case 7.) Both eyes are edematous with slight ptosis. There is a necrotizing ulcer involving the right upper and lower eyelid.

punctures were done and prontosil given intraspinally and intravenously with transfusion about every third day. For a short time he rallied and for a few days was oriented but afterwards became more stuporous and developed bilateral deafness. Attempt was made to drain the cerebellar pontine angle and forty-two days following the initial infection on the nose the patient expired.

Hemolytic staphylococcus aureus was repeatedly grown from the blood and spinal fluid. The blood showed no protection against the staphylococcus before antitoxin administration.

Postmortem Findings: (1) Anterior circular and right and left cavernous sinus thrombophlebitis; (2) basilar meningitis; (3) internal hydrocephalus; (4) multiple abscess of lung and kidneys; (5) lobar pneumonia right lower lobe, and (6) bilateral pulmonary congestion.

Case 7. A woman, aged 42 years, was transferred to the Kansas City General Hospital from Research Hospital with a history that on February 1, 1937, patient complained of severe generalized aching, malaise and nasal inflammation. Shortly thereafter patient noted drainage from the nose with severe headache especially round the eyes and she was treated with hypodermic injections (probably a narcotic). These symptoms continued until February 3 when the patient developed a severe sore throat. At about this time the pain in her eyes became more severe, especially in the left eye which became swollen and reddened and protruded somewhat. Swelling became progressively worse until she could no longer raise her head. She was admitted to Research Hospital on February 7 with a temperature of 101 F. and prostrated. White blood cells were 14,550 with 77 per cent polymorphonuclears. Roentgen examination showed pansinusitis. The nose was treated conservatively with shrinkage and suction and on February 13 a small incision was made in the edematous tissue under the right eye because the tension of skin caused intolerable pain. On February 14 there was bleb formation over the lids with severe pain and induration which had extended over the cheeks. There was no line of demarcation. A tentative diagnosis of erysipelas was made and patient given erysipelas serum and transferred to Isolation Hospital. On admission to the Isolation Hospital the diagnosis of erysipelas was confirmed, but because of the necrotic ulcer about the eye and cords palpated in the area involved by the erysipelas, an added diagnosis of superimposed staphylococcal infection was made.⁵ On the day of admission one ampoule of erysipelas antitoxin and 20,000 units of staphylococcus antitoxin were given intramuscularly. On the next day the temperature rose to 103.4 F. and the patient was transfused with 500 cc. of citrated blood and given another 10,000 units of staphylococcus antitoxin intramuscularly. This was repeated on the following day. The temperature gradually subsided. On February 19 there was edema of the left eye which later suppurated; the patient was unable to converge the eyes and complained of double vision when using both eyes. At this time the left eye as well as the right protruded. During her stay in the hospital several glands in the neck suppurated and were drained; the eyes gradually receded but never returned to normal. From the local lesion about the eyes as well as from the areas incised and drained hemolytic staphylococci were isolated in pure culture. Roentgen examination of the sinuses revealed diffuse clouding of the sinuses with destruction of the lamina papyraceae of the left ethmoid. Before antitoxin administration the blood of the patient showed no protection against the staphylococcus.

Case 8. A girl, aged 13 years, developed a small pimple on the upper lip on February 17, 1938, which increased in size until February 23 at which time a pustule appeared at the apex of the swelling and her

mother squeezed it "to let the pus out." On the following day the physician was called who found the upper lip to be hard and edematous and the patient's temperature was 101 F. During the next twenty-four hours hot magnesium sulphate packs were applied constantly; in spite of this treatment the edema extended over the nose and between the eyes and there was no evidence of localization. The temperature varied between 100.5 and 101.5 F. Because of the spreading edema 60,000 units of staphylococcus antitoxin were administered intramuscularly and the magnesium sulphate packs were continued. In the next twenty-four hours the edema of the eyes and nose disappeared and the swelling was confined to the upper lip. Following this a small area of fluctuation appeared which drained spontaneously after which the edema rapidly subsided.

DISCUSSION

From the anatomical and the physiological standpoints it is easily seen why infections in this area are dangerous. It is unquestioned that early incision or wide excision or trauma of any kind often cause intracranial complications. If "watchful expectancy" is practiced a certain percentage will result in thrombosis of the cavernous sinus. From the many and varied treatments used one concludes that all methods of treatment are unsatisfactory but some are far more unsatisfactory than others. No less an authority than Eagleton⁶ states, "It is evident that thrombophlebitis with purulent clot in the cavernous sinus cannot result in recovery from surgery alone in a large proportion of cases because of its anatomical inaccessibility and pathological relationship. The great depth from the surface and its mesh-like structure prevent complete drainage such as is obtainable in thrombophlebitis of the lateral and transverse sinuses. It will always be impossible to eliminate surgically an infection which has extended from one cavernous sinus through intercommunication to the opposite side. In such an event, the slight hope of recovery must rest on surgery aided by the transfusion of immunized blood."

"However, it seems probable that as long as the infection is limited to one sinus a certain proportion of cases should recover, provided the surgical attack is instituted at an early date, and the meningitis (which generally accompanies a periphlebitis) is either protective in type or confined to the basal cisterna or the subdural space contiguous to the sinus."

One must recall that the technical difficulties incident to such surgery and the special training necessary to perform such surgical procedures on the cavernous sinus is not always available. This coupled with the fact that the patient's condition is, in most instances, such as to preclude any surgery if it were available makes a thrombophlebitis of the cavernous sinus of the anterior type a hopeless condition at the time that the diagnosis is evident. For after all, the thrombosis of the cavernous sinus is but a sequel to a septic thrombophlebitis of the veins of the face and is only definitely established when the process has already entered the

skull, at which time the condition is fairly well generalized.

As we have previously reported, it has been our experience that the anterior type of cavernous sinus thrombophlebitis is usually preceded by a furuncle or staphylococcal infection in the "danger area" with extension of the infected thrombus to the cavernous sinus of the same side and later an extension of the thrombus to the opposite sinus through the intercommunicating sinus. From all cases which we have examined bacteriologically we have been able to isolate toxigenic staphylococci. This has also been the experience of others and one is, therefore, forced to associate this involvement with the growth of the staphylococcus and to assume that if a staphylococcus is able to invade tissue, it is "a priori" toxigenic. From the foregoing, one is relatively secure in assuming that the spreading thrombophlebitis in this area is staphylococcal, and in a process that is so fulminating much valuable time may be lost in attempting to cultivate the offending organism.

It is generally conceded that during the process of growth the staphylococcus elaborates an exotoxin. Lately this exotoxin has been subjected to wide investigation and at present is thought to be made up of several components, viz., several hemolysins, two leukocidins and a plasma coagulase. While these facts regarding the exotoxin of the staphylococcus are of investigative importance, actually all components of the staphylotoxin are neutralized by the same antitoxin.

As pointed out by Neisser and Weschberg⁷ and recently emphasized by Parish, O'Meara and Clark,⁸ antitoxin against the staphylococcus is consistently present in the blood which in the presence of chronic staphylococcus infections, especially chronic osteomyelitis, may reach an unbelievably high concentration.⁹ This high antitoxic titer is not noted in early acute osteomyelitis, staphylococcal septicemia or other fulminating staphylococcal conditions. This can be interpreted as a negative phase in which there is free toxin circulating in the blood which must first be neutralized by the antitoxin administered before an antihemolysin titer can be demonstrated. From postmortem study there is no question of the existence of this toxemia, particularly from the histological changes seen in all the viscera including the gastro-intestinal tract, and also the fact that similar changes may be brought about in the experimental animal by the injection of the toxin alone, freed of all bacteria.

Smith¹⁰ has conclusively shown that the experimental animal can withstand massive doses of toxin and also of virulent staphylococci (eight times the lethal dose) after complete immunization. It is noted that with early active staphylococcal infections a person has no antitoxic titer, whereas as the infection becomes chronic the titer may become quite high and there is a direct correlation between the antitoxic content of the blood and resistance to staphylococcus infections.

There is much evidence at the present time which is being fortified daily that in staphylococcal septicemia, osteomyelitis and certain phagedenic ulcers of the skin of staphylococcal origin the antitoxin has considerable influence in preventing tissue damage. That the antitoxin can bind the toxin is attested by the fact that if the staphylococcus toxin is first neutralized in vitro by antitoxin it will be inert insofar as causing histological changes; but if the staphylotoxin has been allowed to bind itself to the tissue cells demonstrable histological change will be seen and no amount of added antitoxin can reverse this reaction. One must recall that only the circulating toxin can be neutralized by antitoxin.

CONCLUSION

Although staphylotoxin may be composed of several components one has ample bacteriological, experimental and clinical evidence that all these components are neutralized by the same antitoxin. In all staphylococcus infections a free toxin is elaborated which has the property of causing toxic degenerative changes in the various organs, of increasing the coagulability of the blood and of damaging the tissue cells and the intima of the blood vessel. This toxin binds itself irreversibly to the tissue cells and only the circulating toxin can be neutralized by the antitoxin. The antihemolysin concentration of the blood is directly correlated with resistance to the invasion by the staphylococcus or its elaborated toxin. In overwhelming staphylococcal infections there is little or no antitoxin circulating in the blood and antitoxin does not prevent the growth of the bacteria.

Cavernous sinus thrombosis is but the end picture of a rapidly developing thrombophlebitis of the veins of the face with an associated edema caused by the growth of the staphylococcus in an area which drains directly into the skull, and in which area there is slowing of the blood stream.

From our experience it is our opinion that staphylococcus antitoxin is of definite value in spreading thrombophlebitis of the danger area of the face with associated toxemia, which is in reality a potential cavernous sinus thrombophlebitis, and should be used routinely in large doses early in the course of disease and correlated by the antihemolysin reading. Once the cavernous sinus is definitely involved it is of no value.

Since the above article was written, four additional cases of spreading cellulitis of the face of staphylococcal etiology have been observed and treated with staphylococcus antitoxin with recovery in all instances.

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We are indebted to our medical colleagues for the privilege of observing and assisting in the treatment of the above cases.

MYASTHENIA GRAVIS

RECENT DEVELOPMENTS IN TREATMENT. REPORT OF CASE

ANTHONY B. DAY, M.D.

ST. LOUIS

First described by Willis in the seventeenth century,¹ myasthenia gravis has been the subject of study from all angles, but only in recent years has a better understanding of its nature been reached. Jolly in 1895 first clearly demonstrated by electrical stimulation of muscle in cases of myasthenia gravis the rapid fatigue reaction which is so characteristic of the condition. He pointed out that it is not a bulbar disease, though prior to this it had been noted by Oppenheim that no medullary pathological changes existed in a case which he described as "progressive bulbar palsy." Jolly gave the name "myasthenia gravis pseudoparalitica" to this condition which we now know as myasthenia gravis.

There are no constant pathological changes in myasthenia gravis. Buzzard in 1905 demonstrated inconstant lymphocytic infiltrations within the muscle.² Thymic hyperplasia has been found in about 50 per cent of cases coming to postmortem.³ The central nervous system however is free from any evidence of pathological change. In recent years, interest has been centered on the metabolic and physicochemical changes in muscle tissue and the neuromuscular junction.

In 1932 reports from the laboratory of Professor Karl Thomas in Leipsig appeared on the beneficial effect of glycine (aminocetic acid) when given to patients with progressive muscular dystrophy.⁴ Boothby reported in September, 1932, a similar benefit on administering glycine to patients with myasthenia gravis.⁵ Since this original report, much work has been done by Boothby and his co-workers on the creatin and creatinin excretion in myasthenia. In the seventh and last report from the Mayo Clinic⁶ these metabolic studies have been summarized. Boothby here points out that while the administration of glycine to patients with myasthenia gravis causes at least some improvement in nearly all cases and an associated increase in creatinin excretion, these metabolic investigations leave the mechanism of fatigability unsolved.⁶

In June, 1934, Dr. Mary Walker called attention to the antagonistic effect of physostigmine to curare poisoning, and reported benefit in a case of myasthenia gravis from physostigmine.⁷ Later prostigmin was substituted thus avoiding the disturbing toxic effects of physostigmine. Physicochemical studies by Dale and Feldberg⁸ and others have shown "that acetyl choline or some related choline ester is concerned with the transmission of excitation from the somatic motor nerve endings to voluntary muscle. Prostigmin prevents or delays the destruction of acetylcholine by the choline esterase present in the blood."⁹

Clinically, myasthenia gravis presents a picture dominated by muscle fatigability. Women are more commonly affected. It is disease of early adult life but occurs at any age. Severe infectious disease and pregnancy are the two conditions which most frequently precede the onset of symptoms. Characteristically, there is early involvement of the muscles of mastication and deglutition, ptosis of one or both lids and weakness of the external ocular muscles. Later the muscles of the extremities are involved and sometimes the respiratory muscles so that difficulty in breathing is complained of. All these symptoms are worse in the latter part of the day and better after a night's rest. As the disease progresses the fatigue reaction to exertion is profound so that in severe cases the patient is unable to get out of bed, and even self-feeding is impossible. Relapses are characteristic after periods of spontaneous improvement.

The appearance of a patient with well developed myasthenia gravis is striking. The ptosis, flattening out of the facial muscles and general appearance of profound fatigue should immediately suggest the proper diagnosis. The reflexes are normal and careful general examination fails to reveal any abnormalities. The "myasthenic reaction" of Jolly shows a markedly increased fatigue reaction in electrically stimulated muscles. Recently the hypodermic injection of prostigmin has been advocated as a diagnostic test in myasthenia gravis¹⁰ and particularly in differentiating it from other diseases in which muscle fatigue and muscular weakness are prominent symptoms.¹¹ This test should be the one of choice in the differential diagnosis of myasthenia gravis. It appears to be specific, is simple and safe to use, and a response occurs within thirty seconds after giving the injection.

TREATMENT

Prior to the discovery of modern drug therapy in myasthenia gravis, rest and large doses of strychnine with tube feeding were the only means of treating the disease. This meant almost complete incapacitation of the patient, and the severe cases could not survive. In 1932, Dr. Harriett Edgeworth,¹² herself a sufferer from myasthenia gravis in a severe form, reported the beneficial effect in her own case of ephedrine sulphate taken by mouth. This observation led to the recognition of ephedrine

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as an important drug in the treatment of myasthenia gravis. The patient whose case I will report has been carried on ephedrine alone since January, 1937, and has been able to lead an economically independent life. Most observers, however, report more positive and lasting benefit from the use of prostigmin or of prostigmin in combination with ephedrine sulphate hypodermically or by mouth. This drug can be given either hypodermically or by mouth. The dose should be varied to fit the requirements of the individual case. Mitchell¹³ in reporting the experiences in Boston with oral prostigmin therapy advocates from 60 to 150 mgm. daily in divided doses of from 15 to 30 mgm. each, starting early in the morning. The effect comes on within thirty minutes, reaches its maximum in one hour and begins to diminish in two hours, disappearing within from three to five hours. The addition of atropine is beneficial in abolishing disagreeable effects if they occur. It can be taken either as tincture of belladonna from 3 to 15 drops three times daily or atropine sulphate from 1/150 to 1/200 gr. three times daily. A recent report by Viets, Mitchell and Schwab from the Department of Neurology, Massachusetts General Hospital, gives the results of treatment using prostigmin by mouth alone and combined with ephedrine.

Glycine in large doses (30 gms. daily) has been used in the series reported by Boothby.⁶ Its expense, the large doses required and the apparent lack of uniform benefit from its use have made it less of value than prostigmin and ephedrine in the treatment of myasthenia gravis.

REPORT OF CASE

This patient was first seen by me on the night of January 7, 1937. She is a widow, aged 63 years, an apartment manager. Admitted to St. Luke's Hospital January 13, 1937, for study and diagnosis. Primary complaints were difficulty in breathing, particularly at night, extreme weakness and difficulty in chewing and swallowing. The onset of symptoms followed the sudden death of her son in 1932. At that time she noted profound muscular weakness and for the first time double vision. Improvement followed but the symptoms returned in 1933, one year later, and in the summer of 1935 became more severe and permanent. Early in January, 1937, all symptoms were aggravated. The double vision had remained constant. She had difficulty in chewing food. Swallowing became difficult. Often at night she would have severe attacks of dyspnea when she felt that she could not get her breath and would suffocate. I observed one of these attacks which was characterized by great inspiratory difficulty. There was no evidence of circulatory weakness at the time and laryngeal examination showed both vocal cords acting normally. All symptoms were aggravated by physical exertion.

Physical examination showed a rather obese woman. The muscles were flabby. There was ptosis of the right lid. The facial muscles were flattened out. Any attempt at physical exertion was slow and she walked with difficulty. Speech was clear but became inaudible after a few sentences. There was paralysis of the right and weakness of the left external ocular muscles. There was slight internal strabismus of the right eye. Neurological examination showed no reflex changes of any

significance. Eyegrounds were normal. Cardiovascular examination showed no abnormalities. The blood pressure varied between 90 and 110 systolic, 55 and 80 diastolic. The lungs were clear. The abdomen showed a reducible right inguinal hernia. The liver, spleen and kidneys were not felt. There was no tenderness noted. Pelvic and rectal examinations were not made.

Laboratory tests showed normal urine repeatedly.

Table 1. Blood Analyses

	Jan. 13, 1937	Jan. 25, 1937
Hemoglobin	78 per cent	77 per cent
Red cell count	3,830,000	3,700,000
Leukocytes	5000	6000
Stabs.	2 per cent	
Segments	65 per cent	66 per cent
Eosinophils	2 per cent	2 per cent
Lymphocytes	31 per cent	31 per cent
Mononuclears		1 per cent
Sugar	97 mgm. per 100 cc.	
N. P. N.	28 mgm. per 100 cc.	
Calcium	10.6 mgm. per 100 cc.	
Phosphorus	3.7 mgm. per 100 cc.	
Wassermann and Kline tests	negative.	
Basal metabolism	-4 per cent.	

Chest fluoroscopy by Dr. O. C. Zink showed cardiac enlargement 1 and arteriosclerotic aorta.

Family History.—Unimportant.

Past History.—Usual childhood diseases. Rheumatic fever at age 32. Recovery. General health always good. Married 20 years, one pregnancy, normal gestation. Menopause at age 50, no untoward symptoms. Pelvic operation performed at 40; appendectomy. No note as to what was done in the pelvis.

Previous Hospital Entry.—Entered St. Luke's Hospital May 17, 1936, with a strangulated right inguinal hernia. Reduced manually by Dr. Crigler; discharged the following day. No note was made at the time in regard to her general physical condition and complaints. An open film of the abdomen taken on admission May 17, 1936, showed calcified tubercles in the spleen and hypertrophic osteo-arthritis of the lower dorsal and upper lumbar spine. Discharged May, 1936.

Treatment in this case consisted of ephedrine sulphate gr. $\frac{3}{8}$ by mouth three times daily following meals, later reducing dose to gr. $\frac{3}{8}$ twice daily. She was also advised to reduce physical activity as far as is possible with her occupation as apartment manager. Improvement was prompt and while the double vision has remained constant muscular fatigue is improved. The ptosis is better at times but always becomes worse after physical activity. Chewing and swallowing are not disturbed. There have been no further attacks of respiratory difficulty.

Prostigmin was not used in this case because the symptoms were fairly well controlled with ephedrine. It will be used if relapse occurs or ephedrine fails to maintain muscle strength.

CONCLUSION

Myasthenia gravis is due to a physiochemical disturbance at the myoneural junction.

Therapy based on knowledge gained by laboratory and clinical studies of muscle chemistry and metabolism with the use of prostigmin or prostigmin with ephedrine has controlled muscle fatigability in a great majority of cases of true myasthenia gravis.

The use of prostigmin parenterally as a diagnostic test allows differentiation of true myasthenia gravis from cases presenting muscle fatigue or a prominent symptom as a result of which the con-

dition should be recognized more often and proper treatment instituted.

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EPILEPSY AND HYPERTENSIVE STATES

BILATERAL CAROTID DENERVATION

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In reviewing the literature on epilepsy one realizes the truth of the statement by Lennox of the Neuropathology Department of Howard University that the present knowledge of epilepsy is meager while the literature is abundant. Opinion differs as to whether epilepsy should be regarded as a disease entity with a single cause or whether one should consider it a symptom. This allows a consideration of two types, (1) the so-called symptomatic group embodying the presence of tumor, brain injuries, toxemias and tetany, and the second type embracing the group designated as idiopathic, the essential or genuine group wherein no cause can be found. It is to the latter group that I direct your attention.

Petit Mal.—Various degrees of petit mal are noted and we will not discuss this entity only to remind ourselves that it is frequently associated with grand mal. The pyknolepsy or transient minor attacks of unconsciousness of children without mental impairment which usually disappear regardless of treatment is not to be considered in this treatment.

Grand mal with its initial tonic spasms with or

without aura, followed by the characteristic classic contractures which gradually lessen in severity and frequency until at last with complete cessation the patient lies senseless, prostrate and usually sleeping for a variable period is the type I shall discuss.

Having noted that headaches of migraine-like severity often accompany grand mal or are found in the family of the epileptic, it has been the thought that spasmus of cerebral vessels is probably the factor responsible. This in no wise explains this discharge of energy but, because in certain cases I have been able to control spasmus in vessels of the extremities by the interruption of reflex pathways within the vessel wall itself, I felt that if I could do the same in the intricate plexes of the carotid arteries, it would be possible to affect the visible or objective features of so-called epilepsy. Having noted no untoward sequelae in denervation of the femorals, I anticipated no casualty in applying the procedure to the carotid.

A brief history of the following cases is submitted.

REPORT OF CASES

Case 1. R. D., male, aged 20 years, was first seen March 10, 1931, lying on the floor of an office following an attack of unconsciousness accompanied by tonic, then clonic contractures. The following day he stated that he had had his first attack in January of the same year. There was no history of epilepsy in the family. Eyegrounds, reflexes, mentality, environment, habits were all normal. The Wassermann test, urine, blood and basal metabolic rate were without significance. Luminal in quarter grain doses kept him symptom free for six months, when he had his third attack which caused him to be bedridden two days. It was at this time that headaches appeared. During 1932 the attacks increased to once or twice a month despite 1½ grains of luminal. Headaches became more pronounced and at that time constituted an aura. Contractions always started on the left side with head drawn to the right. I referred him to a neurologist who put him on bromides but the attacks increased to three a week.

I suggested the possibility of denervation of the carotid. The suggestion was accepted and on October 6, 1934, I denervated the right common carotid since the spasm originated on the left side. No untoward effects were noted. The patient said the right side of his head felt warmer and slightly full. Four days later he had a slight attack of unconsciousness but no spasms or contractures. He left the hospital on the fifth day and had no attack for thirty-six days, and then he lost consciousness for about five seconds according to the mother's report. No spasms accompanied this attack. One other attack occurred on March 15, 1935, but still there was no grand mal and no headache, the patient just felt faint. During this time he had no medication. He gained twenty pounds in weight and had no further attacks for fourteen months. Following gross indiscretions of diet, late hours, cigarettes and liquor, he had a slight attack in May, 1936, and again in June. I decided to denervate the left carotid which I did in July, 1936. Up to January, 1937, he had three fainting spells but never any contracture and no headaches.

In 1937 he had four minor fainting spells. In January, 1938, he moved to Tucson, Arizona, where he entered into numerous drinking bouts of extended periods with the result that his old type of grand mal returned. He had attacks every week. This continued for eight weeks at the end of which time he returned to Kansas City, has stopped drinking and has had but two attacks in

two months, and these without convulsions. I mention this in particular in order to emphasize the fact that alcohol and epilepsy are incompatible.

Case 2. Miss E. K., aged 17 years, had had epilepsy since birth. Mentality was fair. She suffered attacks from three to five times a day of the grand mal type. Patient was well nourished with no evidence of tumor. Wassermann was negative. She was operated on on May 5, 1936, bilateral carotid denervation. She had no attacks until June 5, 1936, but the attack was mild with no grand mal. Word from her guardian September 27, 1936, states that the attack in June is the only one she has had following denervation. She had been taking $1\frac{1}{2}$ grains of luminal a day prior to operation. At the present time she eats meat three times a day, takes one tablet of mebaral each evening and according to her guardian her ability to concentrate and study has increased remarkably. This case had done remarkably well to date. There was no family history of epilepsy.

Case 3. Miss P. M., aged 27 years, had attacks starting at the age of 20 with no grand mal. The attacks lasted for one hour and she would be exhausted for two days following the attacks. At the onset, the attacks occurred about once a month with no apparent relation to menses. Headaches were frequent and always worse before an attack. On March 11, 1936, she was operated on in an osteopathic hospital and both tubes and ovaries were removed because she was told that removal of the ovaries would cure the epilepsy. Unfortunately this operation increased the attacks to one every week or ten days, sometimes twice a week and hot flashes and headaches became quite marked. She does not smoke nor drink. In May, 1936, bilateral carotid denervation was done. The hospitalization of the usual five day period was observed. She has not had a headache and but three attacks of unconsciousness since the operation early in May, 1936. The hot flashes require other treatment, but her mental attitude and capacity for work in a large stationery house have been considerably improved.

Case 4. Miss L. H., aged 20 years, had had attacks of grand mal since birth. Three grains of luminal a day did not prevent attacks of extreme grand mal from three to five times a week. She has not attended school for the last two years. With private teachers she has attained the equivalent of two years of high school education. The father had epilepsy as a child in the mild form but these ceased at the age of 20. She had headaches of a severe nature before and after the attacks. Bilateral carotid denervation was done early in August, 1936, with an uneventful recovery. A letter written by the patient herself states that she has had no attacks and no headaches since the denervation. She states that her head feels more clear than heretofore. She is taking one tablet of mebaral before each evening meal. While this case is but twenty months removed from operation it is interesting to note the cessation of grand mal or petit mal and the absence of headaches. This case is one in which I felt it advisable to supplement the operative procedure with a change in medication. Later on we shall observe the course of the case and attempt to withdraw even the small dosage of mebaral.

Case 5. Mr. L. K., aged 24 years, had attacks of grand mal beginning at age 17. A competent neurologist examined the patient three years ago and found no signs of brain tumor nor lues. The father states the child had a hard fall on the head at age 14 and the attacks followed three years later. The father had slight attacks as a young boy but they disappeared. Patient takes $1\frac{1}{2}$ grains of luminal a day to keep the attacks to five a week and will have them twice a day unless he does this. His mentality is about that of a 14 year old boy and he has violent fits of temper just before he has an attack. Constipation makes the attacks more frequent. He usually chews his tongue during the

attacks and following the attacks he is exhausted. The attacks are more frequent in hot than in cold weather.

Bilateral denervation was done August 24, 1936. He has not had a headache nor an attack of epilepsy of any form since that time, but it is interesting to note that he does have fits of temper occasionally and always because he cannot have his own way. He is extremely powerful, weight 176 pounds, 5 feet, $10\frac{1}{2}$ inches in height and is of the bull-neck type. He is taking $\frac{1}{4}$ grain of mebaral a day. The father states that the boy hates the plumbers trade and wants to farm. He thinks a change of occupation may correct the fits of temper. The father states that a stuttering that was present prior to denervation has improved.

Two complete failures must be reported in connection with epilepsy or rather I might say the symptoms of so-called epilepsy.

REPORT OF CASES

A young boy, 14 years of age, had been subject to attacks of grand mal since age 10 following an electrical shock from an imperfectly grounded radio. He suffered from sexual exhibitionism, involuntary stools and micturition and naturally could not attend school. His face presents many stigmata of degeneracy: high, flat bridged nose, protruding teeth, large ears with unusual antihelix conformation, listless eyes, droopy lids. He was referred by a neurologist who had had no success with drug therapy. While the case seemed unfavorable we decided to try denervation in August, 1935. While prior to operation the child had three attacks a day this frequency was reduced to one every four or five days. Strangely enough he has never had a headache since his operation but he is just as stupid and sexually precocious as ever, and his attacks of epilepsy have not been influenced to any great extent.

A second case of failure occurred in a young woman, Miss W., aged 25 years. Her attacks started at age 14. The frequency of grand mal attacks ranged from five to fifteen attacks a day. For two or three months after denervation in the fall of 1936, she improved to one attack every three or four days but never attained any marked diminution of attacks beyond this point. However, again the headaches disappeared, but I do not feel that much was accomplished in this case.

I have had little success with ketogenic or dehydration treatments mainly, perhaps, because patients will not observe the regimen. Fettermin and Kumin of Cleveland report no success with such procedures as do Wilson and Limberger of Philadelphia.

When one considers the variable factors which enter into the diagnosis of epilepsy the confusion for the examiner becomes apparent. Only a little over a year ago I elected to denervate the carotids of a young man, 24 years of age, the son of a physician, who had attended numerous clinics for relief. According to the father all tests, serology, roentgen ray and ventriculograms failed to reveal any cause. He had been having attacks of grand mal type once or twice a week. Following denervation with the aid of mebaral, 3 grains three times a day, his attacks were lessened to once a month. After six months we discontinued drugs and diet and he had attacks once a week or one every two weeks, always at night. This led me to suspect hyperinsulinism. I referred him to an internist who promptly demonstrated moderate hyperinsulinism. The in-

ternist suggested a certain diet and increased intervals of feeding with the result that attacks now are but once a month, still at night. I mention this case to illustrate the necessity for complete examination. Carotid denervation could not be expected to do much in such a case and it did not.

Another case, the brother of a doctor, had received considerable diagnostic attention. The patient was 27 years of age, had had epilepsy since the age of 4 and presented some evidence of mental deterioration. His attacks occurred from three to five times a week, occasionally three a day. He was denervated early in February, 1937, and placed on mebaral, 3 grains morning and evening. He had a single attack one week after the operation, one of his most severe attacks, and that has been his last attack to date. He is still on mebaral. Prior to denervation 3 grains a day of phenobarbital were ineffective. Both cases described had aura of severe headaches from one day to a few hours before the attack. Neither case has had a headache since denervation.

In all cases reported bilateral denervation of the common carotid has been done. This procedure has not been limited to epilepsy. I have used it in three cases of hypertension of the so-called essential type. In these cases the pressures were 180/118, 300/100 and 240/120 respectively. All suffered intense attacks of migraine.

The first case had had a cerebral accident in 1928 at age 40 resulting in aphasia and partial paralysis of the right arm and leg. Following denervation his gait became better, slight improvement in his aphasia was noted and his blood pressure dropped to 150/70 where it has remained for the last four years.

The second patient with the pressure of 300/100 was a young woman aged 32 years, suffering from fainting spells, migraine and hemianopia of the right eye. Early in 1934 a bilateral denervation was done and the pressure dropped to 180 in three days and rose six months later to 210 but stabilized at 200/110 where it has remained. Her hemianopia disappeared the fourth postoperative day. I have not seen this patient for the last year but have been informed that she works steadily at a machine for making seat covers.

The third patient was a woman, aged 64 years, presenting symptoms of intense migraine, periodic attacks of angina pectoris, could not sleep lying down, pressure 240/120 and pulse 120. She submitted to a denervation nine weeks ago. The pressure had dropped to 170/90, her pulse is regular and varies from 76 sitting to 90 standing. She sleeps well lying down, she has not had an attack of angina since the operation, she does not get dizzy and to date she has not had an attack of migraine. She is not taking medication of any kind. I realize the importance of reporting such a result at such an early date following operation, yet the immediate result is not without interest.

It would seem that the lower the mental scale

of the patient the slower the response to denervation, and I do not offer this procedure in cases where mental deterioration is far advanced. The earlier the spasmus of cerebral vessels is controlled the better the end result. In other words, when the epilepsy is due solely to spasm of cerebral vessels carotid denervation apparently offers a form of effective surgical therapy which is not dangerous and which, in conjunction with mild supplemental drug therapy, produces an apparent happy result. In no case has the procedure failed to eliminate headache.

In proposing denervation I do not intend that drug therapy be discontinued. My observations lead me to believe that one may be enhanced by the other. One must also realize that in dealing with any form of therapy applicable to epilepsy one must take into account the type of patient, the duration of the illness and especially the time factor. The same statement is true for cases of hypertension. Both hypertension and epilepsy are as yet somewhat intangible. What the definite future of the treatment of vasospastic diseases of the brain by means of bilateral carotid denervation holds, remains to be seen. I offer it as a step in the solution. In over fifty cases of arterial denervation by means of phenol injection, I have had no untoward reactions, no aneurysms have developed and no motor disturbances. I will even be so bold as to suggest the operation as a possible prophylactic to cerebral accidents such as thrombosis and hemorrhage; by inhibiting spasm of cerebral vessels the likelihood of bursting of weakened portions is lessened and thrombosis of vessels is less likely to happen.

The operation itself consists in isolating the common carotid on either side and treating the artery by injecting 4.25 per cent phenol beneath the adventitia sufficiently to completely surround the artery for a distance of at least an inch and a half and just below the superior thyroid. The solution penetrates the media in which run many sympathetic fibers. No secondary injury has been encountered in the carotids, the brachial or femoral arteries.

CONCLUSION

Seven cases of epilepsy are reported with results following carotid denervation.

Three cases of hypertension with different symptoms are described briefly and the results of carotid denervation noted.

One case of hyperinsulinism simulating epilepsy is reported.

830 Professional Building.

DISCUSSION

DR. ROBERT E. BRITT, St. Louis: The relationship of circulatory disturbances to convulsive seizures has been observed from time to time and I think this method of therapy is quite interesting. Cushing and other neurosurgeons have called attention to the fact that during brain operations circulatory disturbances of the

brain have occurred and that convulsive attacks have been noted with these changes in circulation. It is in this regard that Dr. Pittam's treatment is so interesting. The marked intolerance to alcohol and the changes in the ordinary routine of the epileptic patient have also been noted as being conducive to further seizures. In the treatment of these people over long periods of time considerable relief from attacks has been obtained through conservative treatment, but if indiscretions of diet, indiscriminate use of alcohol, loss of their regular hours of rest and, for that matter, periods of chronic constipation their attacks tend to recur. I am sure that this method of approach from the circulatory point of view is extremely interesting and will probably contribute more information to this particular phase of epileptic disturbances as time goes on.

SPECIAL ARTICLE

HAS THE MEDICAL PROFESSION FAILED IN ITS OBLIGATION TO SOCIETY?

D. F. MANNING, M.D.

MARSHALL, MO.

Much has been written and more said recently by "the powers that be" in condemnation of the medical profession, the charge being made that it has failed to meet its responsibility to society in not providing adequate medical care for at least a third of our population.

This accusation presumably comes from responsible sources and should receive thoughtful and honest consideration. Is the indictment true? If so, we should accept it if we are faithful to our trust and at once earnestly seek to correct the evil. If it is not true, self respect demands that we should refute it with the righteous indignation of honorable men and a noble profession. For one, I am unwilling to accept the charge. And may I be excused when I say I feel that I can speak with some degree of authority in the matter?

For a full half century I have kept myself reasonably informed and in touch with the activities and accomplishments of my profession, seeking conscientiously at all times to keep step in its march of progress; a record of achievements unsurpassed by any other group of workers in the world not excepting even the marvelous strides made in the field of the physical sciences. And, too, I like to believe that I partake in full of that altruistic spirit of service which has been the crowning distinction of medicine since first it was conceived in the mind and heart of Hippocrates and which ever since has been the heritage and glory of every true physician.

In the decade preceding my entrance into the study of medicine Pasteur had announced his discovery of the causative relation of microorganisms to disease, and thus was born the new science of bacteriology. Shortly prior to that time Charles Darwin in the field of biology promulgated his theory of cell activity in the life process which gave

to medicine a working basis for the study and ultimate understanding of immunology. And upon these two foundation stones—bacteriology and immunology—has been erected much of the imposing structure that we know today as modern medicine, for which in no particular need apology be made to any one nor excuse offered for alleged failure to meet the full measure of our responsibility.

No one will assert that the medical profession is 100 per cent perfect nor say there are no weaklings or "black sheep" in the fold. We are fully conscious of our weaknesses and limitations but we are not yet ready to admit that the politicians or the social theorists are the mentors capable of telling us how best to do our job. Such alien influences would, in my opinion, not only fail to remedy the alleged evil but would so curb the creative spirit of medicine as soon to destroy incentive in research and progress, and stagnation or even retrogression would be the inevitable result. History testifies that such is true whenever attempt at the regimentation of medicine has been made.

Who can name a physician of renown in Russia today—the Russia that gave us Metchnikoff and Moschcowitz? When Metchnikoff showed that certain of the body cells, particularly the polynuclear leukocytes, were active in the defense against invasion by microorganisms—his theory of phagocytosis—a great advance was made in the understanding of immunity and the foundation laid for the epoch-making work of Ehrlich. In 1911, only twenty-eight years ago, when Moschcowitz demonstrated the character and cause of what was termed anaphylaxis, he opened an entirely new field, or at least gave us an intelligent understanding of an old one in medicine, and today we speak and write voluminously, if not always understandingly, about hypersensitiveness, bronchial asthma, food allergies, et cetera. And how are the mighty fallen in Germany, Austria and Rome! If the anti-Semitic purge is to continue soon none of their glory will remain for practically all their medical genius was of Jewish blood. No longer now do we make pilgrimages to their shrines of medical learning. Even in cultured Britain, with her system of semi-state medicine, the wheel of progress is all but standing still. Only on the free soil of the Western Hemisphere has medical initiative retained its full virility and kept the torch of progress burning with undiminished glow. And yet, we are commanded to vacate our temple of which we are justly proud and which has been builded with our very life's blood. Shall we do it?

It has been said aptly that "if we see further than our predecessors it is because we stand on their shoulders." This is eminently true in medicine. Already a new generation has climbed on to the shoulders of the generation to which I belong; and so in time it will be with yours. In discussing "New Pathways in Science" Sir Arthur Eddington says: "All new growth of science has its roots in the past. Each phase of scientific advance has contributed

Read before the Saline County Medical Society, January 9, 1939.

something that may be preserved in the succeeding phase. This, indeed, is our ground for hope that the coming generation will find something worth preserving in the scientific thought of today." Thus only can we insure that the line of progress will remain unbroken. To destroy or even discourage this spirit of inventive genius would be a crime indeed, a calamity that I am not yet willing to believe will be permitted. If I am wrong, God have mercy on us! Reversion to the "Dark Ages" would be our fate. Then, it was ecclesiastical domination of intellectual freedom that laid the deadening blight on the spirit and minds of men. Would political domination be less damning? Competitive individualism is the mainspring of progress and ever will be. The evidence of history shows clearly that only when men are unlimited and unrestrained is creative activity at its best; when driven and unhappy, degeneracy of both intellect and morals is inevitable.

To enumerate the advances that have been made in medical practice and procedure, especially in preventive measures, during the last five decades—and that about represents the period of development of what we designate as modern medicine—would add nothing of particular value to this discussion. All are familiar with the record. But reference to it does emphasize the spirit of service which has been the beacon light of the profession. Early in this period we realized that our educational facilities were on too low a plane and reform was instituted from within our own ranks and not compelled from without. True, the Carnegie Foundation had at about that time made a survey of all educational institutions and had called attention to the glaring lack of facilities for effective teaching in many of our medical schools. But even before that report was made, the American Medical Association had instituted measures for improvement by setting certain minimum standards which soon resulted in the consolidation or complete elimination of more than half of the then existing so-called medical colleges. In Missouri alone there were ten at that time. Today there are but two giving the full four year course of instruction.

And in any other direction where reform is indicated for the good of society it may be depended upon that the reform will be made, and at whatever cost. The entire organization of the American Medical Association is set up in behalf of the public good and not for selfish ends. Every bureau or council is designed for the promotion of efficiency and thus for the greater good of those we serve. Had the information available through the Council on Pharmacy and Chemistry been followed there would have been no sulfanilamide catastrophe such as occurred last year. The Massengill preparation had not received recognition by the Council and this should have served as due warning against its use. And so with other agencies of the Association.

Now, what of this underprivileged minority concerning whom our critics seem so deeply agitated?

According to our detractors' own admission the medical profession of the United States is contributing to the care of this class in free services the equivalent of one million dollars a day. I have never had a great flair for mathematics but, if my calculation is correct, this means that on the basis of one hundred and fifty thousand physicians, every American doctor is on an average donating \$6.66²/₃ daily to this group or in other words \$2434.50 per year, a right sizable contribution to charity. And I dare say that no bracket in the social scale is getting better service. But I confess that this is not the group that gives me concern. Rather it is that large middle stratum whose self respect compels them to spurn the hand of charity and drives them to struggle against odds to provide for themselves and their families. Here is our problem, and it must be solved. And if left to ourselves, the solution evolved will have just regard for the real needs of the situation; but we must preserve our traditional freedom unhampered by any form of alien domination while solving it.

No denial is made that the cost of medical care on the basis of our present schedule of charges is a real burden to this group. But any attempt to ride along with political or social reformers who glibly promise to correct conditions that we ourselves have thus far been unable fully to adjust will result only in still greater confusion. Witness the mess that thus far with few exceptions has been made in other and less specialized fields than medicine. There are some things that simply do not belong in the domain of governmental control.

In my opinion government already has gone far beyond its legitimate province in the practice of medicine, and largely in obedience to political influences. The large number of veterans' hospitals established at the public expense and the free services rendered therein, regardless of the economic necessity of the recipients, is to say the least an injustice to the medical profession as a whole and an unwarranted handicap on privately operated hospitals. The veteran who has an adequate income certainly should not be treated as a government ward. But many of them, and be it said to their shame, seem to accept it willingly.

And, too, the federal and state public health services are reaching out more and more in the field of private practice and seem inclined to heap condemnation on our heads when we refuse to acquiesce meekly in their plans. None will question that the public health service has a legitimate and indispensable place in which it alone can function effectively. But it would appear that there is a growing unwillingness to confine this activity to its specific and rightful field. It is the old story of the camel getting his ugly snout under the tent flap. In their zeal to reform the world there is grave danger of attempting too much. The old Chinese aphorism seems to apply: "Those who are wise won't be too busy, and those who are too busy can't be wise."

It is not my purpose to propose plans for remedying the situation. That is a complex problem of varied factors and will require the combined wisdom of many minds to solve. But even now hopeful progress is being made in the direction of reasonable hospitalization costs for those of moderate means through group insurance methods; and I dare say that similar plans may be devised along other lines in due time.

The next most expensive item to hospitalization in the high cost of medical care is present-day diagnostic procedures, laboratory, roentgen ray and other aids frequently employed and unquestionably indispensable in many instances, and always reassuring provided they coincide with the physical findings and clinical manifestations. But may not we justly be accused of depending upon these too exclusively and sometimes of rather reckless disregard of the cost to the patient? I would not minimize in the least the importance, or in many instances the necessity, of laboratory aids in diagnosis and frequently too in pointing the way to proper therapeutic procedures.

Furthermore may not the suggestion be made that we all are endowed with implements of precision that are in danger of becoming dulled from disuse in our leaning so heavily on the laboratory? Sight, hearing, touch, taste and the sense of smell, combined with the power of inductive reasoning and clear analysis, constituted about all of the equipment our forefathers possessed. And yet we must admit that the accuracy of their conclusions should cause us to bare our heads in reverence before them today. Do not misunderstand me. I am arguing only for the fuller cultivation and employment of the God given faculties we possess which should make of us better doctors and occasionally, at least, lessen laboratory costs to our patients!

I began the study of medicine in the old preceptor period under the tutelage of a very wise and cultured physician. Late one afternoon, he was called to the country and asked me to accompany him. We arrived at a lonely Negro cabin in a Texas cotton field. It was after dark but they had not yet lighted a lamp. While waiting for a light my preceptor sniffed the air a few times and said "Smallpox." The room was filled with neighboring Negroes. The light revealed that the diagnosis was correct. I should like to observe that anyone who can accurately differentiate in the dark between the variety of "smells" of a half dozen or more Africans possesses acute and well trained olfactory powers.

Now, you may be asking, "What has all this to do with the accusation that the medical profession has failed in its mission?" The incident just related, nothing; but what precedes, much.

No group that has traveled as far and as fast, over so difficult a road, and unselfishly accomplished as much in behalf of humanity in the space of less than two generations is in serious danger of conviction on a charge of neglect of duty if the

case is properly presented. I believe in the divine mission of medicine and am unwilling to concede that any profession has a deeper sense of social responsibility or has met its obligations more fully.

Let us stand fast for our freedom of action, unmoved either by political pressure or the clamorous vagaries of so-called reformers. We must remain the master of our own house.

The high cost of medical care is not rightly chargeable to the fees we require for services, yet we are made to bear the odium of it all and have become the football for political opportunists. The real burden lies in the expenses of hospitalization, laboratory requirements, nurses' services and pharmaceutical necessities such as biological products, sera and antitoxins. Let the attack be made on the real culprits, if culprits there be, rather than strike at the very tap root of efficiency and thus destroy or weaken the whole structure. If these accessory costs cannot be brought to a more reasonable level—and I do not assert that they can be—then let government subsidy bring them in reach of all. This, no doubt, could be done with much less drain on the public resources than the 850 million dollars that is proposed to be expended annually in destroying the independence and lessening the efficiency of the medical profession. Government subsidy seems to be the panacea for all other of our ills, why not for this?

Political scramble and lobbying have always been distasteful to doctors. But if we are to maintain our cherished traditions and ideals it now appears that we must fight for them, and carry the fight to the only field that the politicians fear, that of vote control. Alone, although one hundred and fifty thousand strong, we probably could make no impression. But each of us could easily persuade a militant group of friends to join with us in demands on our legislative representatives that would put the "fear of God" in their heads if not in their hearts.

Let us not be deceived. The realities that confront us are serious and call for determined action and united cooperation. To me personally, come what may, it can make but little difference. But I cannot sit complacently by and see the cause to which I have unreservedly devoted my life brought down in humiliation and submission to the influences that are now conspiring against it and which, if successful, would mean a long step backward. The challenge has been made. Let us accept it in full assurance of the righteousness of the stand we take.

The increasing importation of radium into the United States at reduced prices, as indicated by new records set in 1938, is making this element more available as a weapon against cancer. *The Journal of the American Medical Association* for May 20 points out.

"Although the field of the use of radium has been invaded by high voltage X-ray machines," *The Journal* says, "the increasing intensity of the struggle against cancer has more than offset any tendency toward substitution; for internal radiation, in particular, radium treatment possesses unique advantages."

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JUNE, 1939

EDITORIALS

ST. LOUIS SESSION OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association held its nineteenth Annual Session in St. Louis, May 15 to 19, the sixth time the Association has convened in St. Louis. The St. Louis Medical Society was happy to entertain the American Medical Association and is to be congratulated on having been host to such a successful meeting. Registration of Fellows was 7408 and all sessions were well attended. Registration at recent meetings has been: 1938 in San Francisco, 6000; 1937 in Atlantic City, 9764; 1936 in Kansas City, 6824; 1935 in Atlantic City, 8166.

In the House of Delegates the Missouri State Medical Association was represented by Drs. A. R. McComas, Sturgeon; H. L. Kerr, Crane; R. Emmet Kane, St. Louis, and James R. McVay, Kansas City.

The most important business of the House of Delegates was that dealing with the Wagner Bill and the National Health Program. A special committee of five was appointed to study all matters introduced pertaining to the Wagner Act. The House concurred in its recognition that the bill's "stated objectives" are desirable but cited a variety of objections to methods and felt the Association would fail in its public trust if it did not oppose the bill as it would insidiously promote the development of a complete system of tax-supported governmental care, thus undermining and debasing the present standards of medical service. A committee was appointed to represent the Association at a hearing in Washington on May 25 and 26. An executive session of the House was held Wednesday afternoon at which time the report of the special committee to consider the bill was made. The summary of the report, which was adopted, follows:

1. The Wagner Health Bill does not recognize either the spirit or the text of the resolutions adopted by the House of Delegates of the American Medical Association in September, 1938.

2. The House of Delegates cannot approve the methods by which the objectives of the National Health Program are to be obtained.

3. The Wagner Health Bill does not safeguard in any way the continued existence of the private practitioners who have always brought to the people the benefits of scientific research and treatment.

4. The Wagner Health Bill does not provide for the use of the thousands of vacant beds now available in hundreds of church and community general hospitals.

5. This Bill proposes to make federal aid for medical care the rule rather than the exception.

6. The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease.

7. The Wagner Health Bill insidiously promotes the development of a complete system of tax supported governmental medical care.

8. While the Wagner Health Bill provides compensation for loss of wages during illness, it also proposes to provide complete medical service in addition to such compensation.

9. The Wagner Health Bill provides for supreme federal control: federal agents are given authority to disapprove plans proposed by the individual states.

10. The Wagner Health Bill prescribes no method for determining the nature and extent of the needs for preventive and other medical services for which it proposes allotments of funds.

11. The Wagner Health Bill is inconsistent with the fundamental principles of medical care established by scientific medical experience and is therefore contrary to the best interests of the American people.

12. The fortunate health conditions which prevail in the United States cannot be disassociated from the prevailing standards and methods of medical practice.

13. No other profession and no other group have done more for the improvement of public health, the prevention of disease and the care of the sick than have the medical profession and the American Medical Association.

14. The American Medical Association would fail in its public trust if it neglected to express itself unmistakably and emphatically regarding any threat to the national health and well being. It must, therefore, speaking with professional competence, oppose the Wagner Health Bill.

15. The House of Delegates would urge the development of a mechanism for meeting the needs for expansion of preventive medical services, extension of medical care for the indigent and the medically indigent, with local determination of needs and local control of administration, within the philosophy of the American form of government and without damage to the quality of medical service.

16. The fundamental question is how and when a state should be given financial aid by the Federal government out of the resources of the states as a whole, pooled in the Federal Treasury.

17. The bizarre thinking which evolved the system of Federal subsidies—sometimes called "grants-in-aid"—is used to induce states to carry on activities suggested frequently in the first instance by officers and employees of the Federal government.

18. The use of Federal subsidies to accomplish such Federally determined activities has invariably involved Federal control.

19. Any state in actual need for the prevention of disease, the promotion of health and the care of the sick should be able to obtain such aid in a medical emergency without stimulating every other state to seek and to accept similar aid, and thus to have imposed on it the burden of Federal control.

20. The mechanism by which this end is to be accomplished, whether through a Federal agency to which any state in need of Federal financial assistance can

apply, or through a new agency created for this purpose or through responsible officers of existing Federal agencies, must be developed by the Executive and the Congress, who are charged with these duties.

21. Such a method would afford to every state an agency to which it might apply for Federal assistance without involving every other state in the Union or the entire government in the transaction.

22. Such a method would not disturb permanently the American concept of democratic government.

The complete report appears on page 257.

Dr. Irvin Abell, Louisville, in his President's Address said the principal point in the indictment of the American Medical Association was determination of where the power of policing professional organizations lay, stating that heretofore it had been left to the organizations to establish standards of qualifications, training, attainment, character and conduct of members of their ranks. He advocated fighting the issue to the supreme court if necessary. Dr. Abell reiterated the five proposals of the national health program which the Association favors as follows: (1) the health of impoverished persons should be protected by the government; (2) a department of health should be established with a physician as a cabinet member; (3) public health, maternal and child welfare services should be expanded; (4) better use should be made of existing hospital facilities and more hospitals should be built where necessary; (5) although compulsory health insurance is undesirable, hospital insurance and cash indemnity insurance for the payment of doctor bills are all right.



DR. ALPHONSE McMAHON

Dr. Rock Sleyster, Wauwautosa, Wis., who was installed as President at the Session, in the address of the President-Elect, pointed out the gain of 14,000 members in the last five years as an answer to the claims of disintegration of the Association. He deplored the increasing number of medical organizations because it dissipates the strength of the profession. He asked that members not express personal opinions as the opinion of the profession as a whole.

A resolution that directors of clinical pathological laboratories be graduates of medical schools and licensed physicians and have had three years work in clinical pathology was adopted.

It was decided that films and exhibits of medical subjects presented to the laity should be approved by state associations or county medical societies.

The Council on Medical Education and Hospitals was increased from seven to nine members. A recommendation that three members of the Council on Medical Education and Hospitals be appointed to serve on an Advisory Council on Medical Education, Licensure and Hospitals, composed of members of several organizations interested in these phases, was rejected with the recommendation that members serve in an advisory capacity.

A resolution asking Congress to provide funds for a new building for the Army Medical Library and Museum was adopted.

Dr. W. F. Braasch, Rochester, Minn., reporting for the committee in charge of the survey on medical care, denied that the number of medically needy even approaches the 40,000,000 as estimated by various government and private agencies which have studied the problem. He estimated that about 10 per cent of the persons in the United States are now receiving free medical care from physicians. He placed the value of the free medical service given daily by the profession at \$1,000,000.

The opening general meeting was held Tuesday evening at the Auditorium and was open to the public. Addresses were presented by Governor Lloyd C. Stark; Dr. James R. McVay, Kansas City, President of the Missouri State Medical Association, and Dr. Alphonse McMahon, St. Louis, President of the St. Louis Medical Society. Dr. Rock Sleyster, Wauwautosa, Wis., was inaugurated as President of the Association. A medal was presented to Dr. Irvin Abell, Louisville, the retiring President.

Dr. Nathan B. Van Etten, New York, was elected President-Elect of the Association. Dr. Van Etten was born in Waverly, New York, on June 22, 1866. He received his medical degree at Bellevue Hospital, New York, in 1890, and has practiced in New York since that time. In 1935 he was elected Speaker of the House of Delegates and held that office until he retired in 1938. He served as a member of the House in 1920, 1923 and from 1926 to the time he was elected Speaker in 1935. He was president of the Medical Society of the State of New

York in 1925. He is a fellow of the American College of Physicians and the New York Academy of Medicine. He is a past president of the Bronx County Medical Society, the Bronx Borough Medical Society and the New York Society of Medical Jurisprudence.

Dr. Alphonse McMahon, St. Louis, was elected Vice President of the Association. Dr. McMahon is president of the St. Louis Medical Society and has served as Delegate to the Annual Sessions of the Missouri State Medical Association. He is a past president of the St. Louis Clinics and is a senior instructor in internal medicine at St. Louis University School of Medicine where he received his degree in medicine in 1919.

Dr. Olin West, Chicago, was reelected secretary and general manager. Dr. Herman L. Kretschmer, Chicago, was reelected treasurer; Dr. H. H. Shoulders, Nashville, was reelected Speaker of the House, and Dr. Roy W. Fouts, Omaha, was reelected Vice Speaker.

Dr. Roger I. Lee, Boston, was elected to the Board of Trustees to succeed himself, and Dr. Elmer L. Henderson, Louisville, was elected to succeed Dr. Allen H. Bunce, Atlanta, who was not eligible to serve another term. Drs. E. R. Cuncliffe, New York, and Holman Taylor, Fort Worth, Texas, were appointed to the Judicial Council. Dr. Ray Lyman Wilbur, Stanford University, Calif., was reappointed to the Council on Medical Education and Hospitals. Dr. J. Gurney Taylor, Milwaukee, was reappointed to the Council on Scientific Assembly and Dr. Samuel P. Mengel, Wilkes-Barre, Pa., was appointed a member.

Atlantic City was selected as the meeting place for 1942. The Association will meet in New York in 1940, June 10 to 14, and in Cleveland in 1941.

The following Missouri members were elected Affiliate Fellows of the American Medical Association: Drs. Royal L. Garner, Milan; Jacob Breid, Spikard; Josiah G. Moore, Mexico; Emmett F. Cook and Thomas J. Redmond, St. Joseph; D. Walton Hall, Harrison S. Hickok, John L. Myers, Francis E. Wilhelm, Walter P. Grimes, Luther T. Hollis, George H. Hoxie, Ward H. Leonard, James Middleton, Frank C. Neff, George B. Norberg, Ernest F. Robinson, G. Wilse Robinson, Leon Rosenwald, William K. Trimble, David L. Shumate, Scott P. Child, Kansas City; Bransford Lewis, Carl Barck, Louis C. Boisliniere, Given Campbell, Joseph J. Link, Ellsworth S. Smith, Joseph W. Charles, Edward J. Goodwin, William C. Mardorf, R. Brent Murphy, St. Louis.

Forty-one physicians from nineteen foreign nations were present at the Session.

Members of the House of Delegates and officers of the Association were entertained at a dinner by the St. Louis Medical Society on Monday evening. Entertainment included a puppet show in which officials of the Association were sentenced in an

anti-trust "mistrial" to twenty years in the dog house and were released only when Aesculapius came to their assistance. Among other characters in addition to Dr. Going West and Dr. Sharkbein were Grim Daisy Healer of nonmedical cures; Blackstone Bunk, a lawyer; P. Fuller Bloat, an economic royalist; Michael Skullbuster, labor racketeer; Dr. Joe DeJerker, promotor of cults, and Vivian Anti-Vivi. Other skits of the puppet show satirized three large clinics.

Drs. Carlyle F. Jacobson and Morris Moore, St. Louis, were recipients of bronze medals in two classifications of scientific exhibits. A certificate of merit was awarded Drs. Graham Asher, George Walker and Frank Hoecker, Kansas City. Honorable mention was given the exhibit of Drs. Robert Elman, Charles L. Hoagland, L. H. Hemplemann, Jr., and Wilson G. Brown, St. Louis, and special mention given the exhibit of Drs. Robert E. Schlue-ter and Ethel A. Washburn, St. Louis. Dr. James Bryan Herrick, Chicago, received the second annual award of the Association for distinguished scientific service to medicine.

Approximately 250 scientific exhibits were housed on the second floor of the Auditorium and 240 technical exhibits on the first floor. The Committee on Conservation of Eyesight of the Missouri State Medical Association, Dr. C. P. Dyer, St. Louis, Chairman, had a scientific exhibit. All available space in the large building was occupied by exhibits and section meetings.

Two hundred seven physicians entered the golf tournament at the Norwood Hills Country Club on Monday. Missouri men who won trophies were Drs. I. R. Davis and Otto Wilhelmi, St. Louis. Dr. Grayson Carroll, St. Louis, was elected a vice president of the American Medical Golfing Association.

QUALITY VITAMIN ADVERTISEMENTS

From time to time various sections of the medical societies have concerned themselves with the quality of the advertising appearing in newspapers and magazines. Their interest has been unselfish. It has been directed toward enhancement of the public health. Their method has been to invite the voluntary cooperation of the publisher to the end that no misleading medicinal advertisements appeared. Even today the Association receives inquiries from the metropolitan press regarding the status of certain proprietary preparations; the press seeks to bar advertisements of those secret remedies of which the Association through its vested committees strongly disapproves.

One of the major concerns of the layman has always been his health. The newspapers of an earlier generation have occasionally been described as being composed of news of more or less general interest and patent medicine testimonials. The quality of the press has been vastly improved by

the elaboration of the former and the elimination of the latter.

However, a new and more subtle form of advertisement has now appeared. It is based upon the scientific advances made in the study of nutrition. It appeals to that still prevalent interest in personal health which motivates the layman. But because medical meetings themselves have been reported as concerned with the subject matter of the advertisement it gains thereby an unmerited and quite unofficial approval in the minds of laymen.

We refer to advertisements urging greater consumption of vitamin concentrates in tablets, pills, capsules and whatever new dispensing form may be thought of by the keen intellects of those who stand to profit from their sale. So long as such items were restricted to the advertisements of the druggists we found no particular reason to discuss the matter although we cannot approve the dissemination of such products except to such persons as physicians may determine to be genuinely in need of them.

Now it appears that the natural vitamin dispensers are not content to distribute vitamins in their natural form. Willy-nilly, they must take them out of the fruits and vegetables, the natural products of the market place, in order to extract from science-minded but unthoughtful housewives funds better expended for the vitamins supplied by nature. There can be no accrual to the public health resulting from the blind consumption of vitamin concentrates, however labeled or glorified, even if purchased in the grocery store. They have no part in the diet of normal individuals. Such persons should be taught that truth. They should learn to spend their food budget for food, not for extracts prepared in a laboratory. The latter are intended for the sick alone. And only the physician is qualified by training, experience and inclination to determine which persons will benefit from an extra supply of vitamins.

Here it seems to us lies a vital opportunity for the medical society in every community of the state to perform an outstanding public service. They may see to it that the true facts about vitamins are widely disseminated. They may utilize the inferences of the advertisers to prove to the populace that vitamins are a necessity in the diet. But they may go farther. They may point out that the consumption of an adequate diet will supply to each of them an abundance of these life supporting substances. And then, in response to the unspoken query of the consumer, they may point out the constituents of the adequate diet. Again, here it seems to us is an opportunity for public service the equal of which has not been offered to the profession in many a day. For there can be no question that the ingestion of the complete diet constitutes one of the major methods of preventive medicine. The advertisers have already interested the public. The medical society may, if it will, build upon that solidly laid foundation.

NEWS NOTES

The Trudeau Club of St. Louis met May 4 at the Robert Koch Hospital, Koch. Drs. J. T. Maher, Paul Murphy, Albert Kaplan and I. J. Flance, Koch, presented papers.

Dr. John Zahorsky, St. Louis, was a guest of the State Medical Association of Texas at its meeting in San Antonio on May 9, 10 and 11, and spoke on "Psychology in Pediatrics" and "Serum Treatment of Pneumonia in Children."

The first address on the Robert J. Terry Lecture-ship Foundation was delivered by Dr. Lewis H. Weed, Baltimore, on May 17, at Washington University School of Medicine, St. Louis. His subject was "The Anatomist in Medical Education."

Drs. Grayson Carrol, J. Albert Key and French K. Hansel, St. Louis, were guests of the Nebraska State Medical Association at Grand Island, Nebraska, on May 3. Dr. Carrol talked on "The Urologist Turns to Medicine"; Dr. Key on "The Treatment of Compound Fractures" and Dr. Hansel on "Nasal Allergy."

The preliminary program of the American Congress on Obstetrics and Gynecology, which will meet in Cleveland September 11 to 15 sponsored by the American Committee on Maternal Welfare, Inc., includes the following Missouri members: Drs. Julius Jensen and August A. Werner, St. Louis, as speakers, and Drs. Fred. J. Taussig and G. D. Royston, St. Louis, as discussants. Dr. O. H. Schwarz, St. Louis, will conduct a round table discussion.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Tablets Barbitol Sodium—Abbott, 5 grains

Armour Laboratories

Suprarenalin Solution 1:1,000 in 1 cc. Ampules (For Hypodermic Use)

Suprarenalin Solution 1:1,000 in 10 cc. Vials (For Hypodermic Use)

Suprarenalin Solution 1:1,000 in 1 oz. Bottles (For Hypodermic Use)

Suprarenalin Solution 1:1,000 in 1 cc. Ampules (For Hypodermic Use)

Cutter Laboratories

Ampoules Iodobismutol with Saligenin, 2 cc.

Gane's Chemical Works, Inc.

Racephedrine Hydrochloride

The National Drug Co.

Undulant Fever Vaccine (Abortus and Suis)

Undulant Fever Vaccine (Melitensis)

Sharp & Dohme

Antipneumococcic Serum Type II, Refined and Concentrated—Mulford

Antipneumococcic Serum Type VII, Refined and Concentrated—Mulford

The Upjohn Company

Ampoule Solution Sodium Morrhuate 5% with Benzyl Alcohol 2%, 2 cc.

Solution Sodium Morrhuate 5% with Benzyl Alcohol 2%, 30 cc. vials

Ampoule Solution Sodium Morrhuate 10% with Benzyl Alcohol 2%, 2 cc.

Solution Sodium Morrhuate 10% with Benzyl Alcohol 2%, 30 cc. vials

Tablets Sulfanilamide, 5 grains

Tablets Sulfanilamide, 7½ grains

ORGANIZATION ACTIVITIES

ABSTRACT OF MINUTES OF THE COUNCIL

The Council of the Missouri State Medical Association met in St. Louis in the Council Room of the St. Louis Medical Society Building on May 14 at 10:00 a. m. Dr. Curtis H. Lohr, St. Louis, Chairman, presided. In attendance were Drs. A. S. Bristow, Princeton; Curtis H. Lohr, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; E. P. Heller, Kansas City; H. L. Kerr, Crane; E. J. Nienstedt, Sikeston; James R. McVay, Kansas City, President; C. E. Burford, St. Louis, President-Elect; R. L. Thompson, St. Louis, Treasurer, and E. H. Bartelsmeyer, St. Louis, Secretary.

The Treasurer reported the status of funds of the Association and recommended that an attempt be made to collect delinquent dues.

A written report of the Council's special Committee to Study the Problem of Refugee Physicians in Missouri, Dr. A. Morris Ginsberg, Kansas City, Chairman, was presented and referred to the Committee on Public Policy for study and recommendation.

The Council decided to recommend to the House of Delegates that hereafter Delegates to the American Medical Association be reimbursed at the rate of 5 cents a mile each way plus \$5 a day while in attendance at the Session.

The General Committee on Arrangements, composed of Drs. H. L. Kerr, Crane, Chairman; A. J. Campbell, Sedalia, and E. P. Heller, Kansas City, was instructed to select the general chairman of the Local Committee on Arrangements for the Joplin Session. The President and Secretary were instructed to select the date of the meeting.

It was decided to request a joint meeting of the State Cancer Commission, the Committee on Cancer and the officers of the Association.

An offer of Radio Station KFUD, St. Louis, extending the use of the facilities of the Station without charge on Friday nights during September was

accepted and a special committee was appointed as follows: Dr. Curtis H. Lohr, St. Louis; Dr. C. E. Burford, St. Louis, and the Secretary.

It was decided to hold a joint conference of presidents and secretaries of component societies and officers of the Association some time in the fall.

Dr. E. P. Heller, Kansas City, was instructed to represent the Association at the dedication of the Ephriam McDowell Memorial at Danville, Kentucky, May 20, and act for the Association as one of the custodians in the permanent organization to be formed.

REPORT OF SPECIAL COMMITTEE OF THE COUNCIL TO STUDY THE PROBLEM OF REFUGEE PHYSICIANS IN MISSOURI

The special committee named by the Council to study the problem created by the refugee physicians coming into the State of Missouri met in Kansas City on Sunday, March 19, 1939. There were present Dr. Daniel B. Landau, Hannibal; Dr. Charles Greenberg, St. Joseph; Dr. I. M. Goldberg, Polo, and Dr. A. Morris Ginsberg, Kansas City, Chairman. We were unfortunate in having with us during a portion of our meeting Dr. E. P. Heller, Kansas City, who came at the invitation of your Chairman.

Our committee was conscious, of course, that all of its members were Jewish, whereas the problem of resettlement of foreign physicians, while perhaps predominantly Jewish, is not entirely so. However, we felt honored to be assigned so important a task and if the results of our deliberations shall prove helpful to the Association and to the refugee doctors, of whatever religious faith, we will be extremely gratified.

Much has been said and written concerning the great influx of foreign doctors as a result of religious and political persecution abroad and we felt it our first duty to find out how nearly correct these reports have been. According to *Time* (February 13, 1939) there has been much loose talk concerning the seriousness of this problem. *Time* reported as follows:

Contrary to popular opinion, there are not 25,000 emigre physicians in the United States. According to the American Medical Association there are only about 1,180. These have trickled in over a period of six years. In a country which boasts 170,000 licensed medical men, 1,180 is an inconsiderable number. Yet a tremendous hue and cry has been raised by American physicians against the hospitality that the United States has extended to foreign "competitors." Last week *Medical Economics* which reaches the office of almost every doctor in the United States issued a loud blast against "Refugees Unlimited."

Asserting boldly that 1,000 European physicians, mostly Germans, are entering the United States every year, *Medical Economics* stated that foreign doctors are "coming in droves" to the United States, painted a gloomy picture of the unrestricted immigration, unfair competition of emigres with American doctors and low standards of medical treatment.

Against *Medical Economics* stands the opinion of several hundred of the most eminent physicians in the

United States, who have formed committees in several large cities to help their unfortunate colleagues. During the next three years, say these physicians, no more than 2,500 European physicians will come to settle in the United States and the United States is certainly large enough to absorb them. Many of these men are outstanding scientists, and will contribute greatly to the progress of American medicine.

Prior to the date of our committee meeting, we made a complete analysis of emigre physicians and medical students who are now in the State of Missouri. Contrary to popular opinion, the number is almost negligible there being a total, including practicing physicians, medical students, interns and teachers of all religious faiths and from all foreign countries, of only thirty. This summary is broken down as follows:

	Licensed Physicians	Resident Doctors	Interns	Dentists	Students
St. Louis	4	0	7	1	5
Kansas City	1	1	1	2	0
St. Joseph	0	0	1	0	0
Fulton	0	1	0	0	0

	Unattached	Teachers
St. Louis	1	4
Kansas City	1	0
St. Joseph	0	0
Fulton	0	0

In view of these facts, we are of the opinion that at the present time Missouri doctors need not be alarmed about the situation. However, to whitewash the matter by simply saying "the problem doesn't exist" would constitute, in our opinion, a report which might well be subject to criticism.

As you know, public health officials in Missouri as well as this Association have been for many years and are now confronted with the very serious problem of distribution of physicians. We all know that there are a multitude of small communities in Missouri where no doctor practices, or where young, energetic cultists have successfully entered the practice of medicine by reason of the advanced age or the incompetence of medical men in the community. Not only are the people of the community suffering but doctors in these communities and in nearby centers of population are likewise suffering. These cultists do not bring their patients to the hospitals in nearby cities and towns and consequently public health in Missouri has suffered. In some communities these cultists have been named public health officials because no doctor was available for the appointment.

Accordingly, we believe this Association could render a distinct service to the state by fostering a plan of distribution of emigre physicians in communities where they are needed. This would contemplate, of course, keeping them out of communities in which the profession is already overcrowded.

Such a plan could be accomplished and at the same time aid could be rendered our unfortunate brothers from abroad.

It is our recommendation that this Association cooperate with the Board of Health to the end that the latter be induced to issue temporary licenses to emigre physicians who are otherwise

qualified to practice medicine in Missouri, and that this Association appoint a permanent standing committee to advise the Board of Health of the location of communities in Missouri wherein adequate medical service is not available. We recommend that such temporary licenses be issued for a term of five years and that the holders thereof be continuously under the sponsorship, guidance and supervision of the Board of Health. Needless to say, the Board would have the power to revoke any such license in the event the holder thereof should fail or refuse to live up to any reasonable regulations of the Board. In that way the Board could, with the advice and cooperation of this Association, assist small communities in which first-class medical service is not available by requiring holders of temporary licenses to practice in a choice of such communities. All Missouri could in that way have the benefit of the services of highly trained physicians, but without detriment to American physicians who are already established, with whom such emigre doctors would not be in competition.

We recommend that the Association make its desires in this connection known to the Central Committee for the Resettlement of Foreign Physicians, New York, a nonsectarian body composed of such outstanding physicians as Dr. Clarence Bandler, Dr. Lewis A. Conner, Dr. Nathan Chandler Foot, Dr. Willard C. Rappeleye, Dr. J. Bentley Squier, Dr. Homer Swift and others. This committee is prepared to make careful selection of candidates, through its various Boards of Review, and to submit them to the Missouri authorities for action. Any candidate submitted will have been determined by the committee to be medically and ethically qualified.

We feel that this Association should take a definite stand in this matter, looking forward toward Missouri's cooperation in the humane and practical absorption of the very small number of foreign physicians who have come and are coming to America. The method we have outlined calls for dignified consideration and calm, yet effective, deliberation and action.

Respectfully submitted,

A. MORRIS GINSBERG, Chairman.

COMMITTEES

A Committee on Tuberculosis and a Committee on Industrial Health, authorized previously, were appointed at Excelsior Springs as special committees. The members of the Committee on Tuberculosis are Drs. E. E. Glenn, Springfield, Chairman; George D. Kettelkamp, Koch, and R. H. Runde, Mount Vernon. Members of the Committee on Industrial Health are Drs. E. C. Funsch, St. Louis, Chairman; J. E. Castles, Kansas City; W. M. Kinney, Joplin; H. I. Spector, St. Louis, and G. T. Bloomer, St. Joseph.

The Committee on Fractures and the Committee on Conservation of Eyesight, formerly special com-

mittees, were made standing committees at the Session. The duties of the Committee on Fractures were designated as to stimulate interest in and disseminate information regarding the current and approved methods of handling fractures to licensed practitioners of medicine and to lay groups approved by the Committee. The Committee on the Conservation of Eyesight is to promote and maintain an educational program in each Councilor District, before medical and lay audiences, on ocular hygiene, conservation of eyesight and prevention of blindness.

COMMITTEE ON FRACTURES

The Committee on Fractures met at the Elms Hotel, Excelsior Springs, on April 11, with Drs. M. L. Klinefelter, St. Louis, Chairman; Frank D. Dickson, Kansas City; James D. Horton, Springfield, and W. J. Stewart, Columbia, present.

The Committee decided to continue its objective of cooperating with the Committee on Postgraduate Course in having one program each year before each county medical society on fractures. The following type program was suggested: (1) emergency treatment of fractures; (2) general principles of fracture treatment; (3) one or two specific or ordinary types of fractures with detailed considerations of handling of these fractures, and (4) the organization of a fracture service in local community hospitals. It was planned that each subject take fifteen or twenty minutes for presentation. Fractures considered suitable for such presentations were those of the wrist, elbow, ankle, spine and intra-articular fractures about the knee joint. The Committee agreed to cooperate with societies in furnishing programs.

The state was divided into districts with each member of the Committee taking the responsibility for fracture programs in his district.

The amendment to the By-Laws, which was adopted, making the Committee a standing committee and giving the Chairman the privilege of appointing three additional junior members to work under his direction was approved.

REPORT OF THE REFERENCE COMMITTEE OF THE AMERICAN MEDICAL ASSOCIATION ON THE WAGNER HEALTH BILL

The report of the Reference Committee appointed at the 1939 Session of the American Medical Association to study all matters concerning the Wagner Health Bill reported at an executive session of the House of Delegates on May 17. The report follows:

Your reference committee has carefully considered the Bill designated as S. 1620, "A Bill to provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability

insurance, and training of personnel; to amend the Social Security Act; and for other purposes."

This bill was introduced by Senator Robert A. Wagner of New York, February 28, 1939, and is commonly referred to as the Wagner Health Bill. The bill itself provides that, if it be enacted, it may be cited as the "National Health Act of 1939." The purposes of the bill are sufficiently stated in the title, but the bill itself must be recognized as a proposed amendment to the Social Security Act of 1935. The bill is intended to make effective a national health program recommended by the Interdepartmental Committee to coordinate health and welfare activities.

The House of Delegates of the American Medical Association at its special session in Chicago, September 16, 1938, considered the National Health Program and adopted resolutions based on five recommendations contained in the program. It is important that this fact be borne in mind, for the bill, which drafted long after these resolutions were adopted and at a time when the resolutions were presumably known to the proponents of this measure, does not recognize either the spirit or the text of these resolutions. Any criticism of this bill by the Association is not to be construed, therefore, as a repudiation of any of the principles adopted by the 1938 Special Session of the House of Delegates.

Analysis of the Bill

S. 1620 proposes to amend Title V of the Social Security Act—Grants to States for Maternal and Child Welfare, and Title VI—Public Health Work and Investigations; and proposes to add to the Social Security Act certain new titles: namely, Title XII—Grants to States for Hospital and Health Centers; Title XIII—Grants to States for Medical Care, and Title XIV—Grants to States for Temporary Disability Compensation.

Already some individuals and organized groups in the United States have appeared before the Senate Subcommittee which has this bill under consideration and have urged its immediate enactment. Although the stated objectives of the Wagner Health Bill are generally recognized as desirable, your committee cannot approve the methods by which these objectives are to be attained.

Repeatedly, physicians and all other qualified professional groups have recommended the coordination and consolidation of the health activities of the Federal Government. The Wagner Health Bill leaves existing and proposed preventive and curative medical services widely scattered through several federal agencies.

This bill does not in any way safeguard the continued existence of the private practitioners who have always brought to the people the benefits of scientific research and treatment.

It does not provide for the use of the thousands of vacant beds now available in hundreds of church and community general hospitals.

The Wagner Health Bill proposes an extensive program in the field of "health, diagnostic, and treatment centers, institutions and related facilities," without defining their functions.

This bill proposes to make federal aid for medical care the rule rather than the exception, since it does not specifically limit its benefits to persons unable to pay for adequate medical care.

The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease and promotion of health.

This bill insidiously promotes the development of a complete system of tax supported governmental medical care, thus undermining and debasing present standards of medical services.

The House of Delegates in September, 1938, urged compensation for the loss of wages during sickness. The Wagner Health Bill deviates from this suggestion

by proposing to provide medical services in addition to compensation.

The Wagner Health Bill would authorize an enormous expansion of governmental medical services and therewith ultimately unlimited appropriations for its health program. The funds necessary would be so great as to increase still further the present burdensome general taxation.

The Wagner Health Bill provides for supreme federal control. Rules and regulations must be promulgated by the Chief of the Children's Bureau in the Department of Labor, the Surgeon General of the Public Health Service, the Federal Emergency Administrator of Public Works, and the Social Security Board. These federal agents are given authority to disapprove plans proposed by the individual states.

The House of Delegates at its September, 1938, Session approved the expansion of preventive and other medical services when the need could be shown. The Wagner Health Bill prescribes no method for determining the nature and extent of the needs for which it proposes allotments of funds.

The provisions in the Wagner Health Bill that have never been considered by the House of Delegates are: the authorization of appropriations for studies, investigations and demonstrations, and the creation of federal and state advisory councils.

The Wagner Health Bill, as judged by the considerations that have been here presented, is inconsistent with the fundamental principles of medical care established by years of scientific professional medical experience, and in the opinion of your committee it is, therefore, contrary to the best interests of the American people.

For years the health of the people of the United States, as measured by sickness and death rates, has been better than that of most foreign countries, and this improvement has been continuous. The fortunate health conditions in the United States cannot be dissociated from the standards and methods of medical practice that have prevailed under the present system of medical practice.

No other profession and no other organization has done more for the prevention of disease, the promotion of health and the care of the sick than have the medical profession and the American Medical Association. No other groups have shown more genuine sympathetic interest in human welfare.

The contribution of the individual members of the American Medical Association to medical care is universally regarded as monumental in total volume. The contribution of the American Medical Association, through a program of medical education and the activities of its numerous councils which safeguard medical service, give abundant proof of interest in the problems of the national health. It has given continued consideration to these problems, whereas others show concern with these proposals because of a present but, it is to be hoped, a temporary need for relief. These are the groups which request revolutionary legislative action as indispensable for the extension and further diffusion of health facilities.

In view of its record and in consideration of the responsibility which American social history and the nature of medical care have imposed on the medical profession, the American Medical Association would fail in its public trust if it neglected to express itself unmistakably and emphatically regarding any threat to the nation's health and well-being.

The American Medical Association must therefore, speaking with professional competence, oppose the Wagner Health Bill.

Nevertheless, recognizing the soundness of the principles stated in the resolutions adopted by the House of Delegates at its special session in 1938, namely, the expansion of preventive medicine and public health

where need can be shown the extension of medical care for the indigent and the medically indigent where the need can be demonstrated, with local determination of needs and local control of measures to supply these needs, your committee would urge the development of a mechanism for meeting these needs within the philosophy of the American form of government and without damage to the quality of medical services.

This question, as it relates to the aid to be given by an individual state to its own counties, municipalities or other local political units, is not immediately before this Association. The answer is to be found in the individual state constitutions and state statutes. Counties, townships and municipalities are creatures of the individual states and can be molded and guided by the state for its own purposes. The individual state, itself, is not a creature of the Federal Government. The Federal Government is, as a matter of fact, a creature of the individual states.

The fundamental question is how and when a state should be given financial aid by the Federal Government out of the resources of the states as a whole, pooled in the Federal Treasury. Disasters, such as floods, dust storms, fire and epidemics, have long been recognized as justifying such Federal aid. No state or person has ever been heard to object to the use of funds out of the Federal Treasury for such purposes. No one has ever proposed, however, that because Federal aid is extended under such conditions to a state in distress, a corresponding aid must be extended to every other state, regardless of its need. Nor has anyone ever been heard to say that Federal aid to a state in distress, because of flood, dust storm, fire or epidemic, shall not be extended, unless and until the suffering state has produced from its own treasury a stated amount of money to aid in affording the relief. The development of such bizarre thinking may be traced to those who have originated within comparatively recent years the granting of Federal subsidies—sometimes referred to as "grants in aid"—to induce states to carry on intrastate activities suggested frequently in the first instance by officers and employees of the Federal Government. The use of Federal subsidies to accomplish such federally determined activities has invariably involved Federal control. Any state in actual need of financial aid from the Federal Government for the prevention of disease, the promotion of health and the care of the sick should be able to obtain aid in a medical emergency without stimulating every other state to seek and to accept similar aid and thus to have imposed on it the burden of Federal control.

The mechanism by which this end is to be accomplished, whether through a Federal Agency to which any state in need of Federal financial assistance can apply, or through a new agency created for this purpose or through responsible officers of existing Federal Agencies, must be developed by the Executive and the Congress who are charged with these duties. Such method would afford to every state an agency to which it might apply for Federal assistance to enable it to care for its own people without involving every other state in the Union or the entire government in the transaction, and without disturbing permanently the American concept of democratic government.

The report was adopted by the House of Delegates.

RESOLUTION ON MEDICAL PRACTICE

The following resolution was adopted by the House of Delegates of the Missouri State Medical Association at the Annual Session, April 10-12, 1939.

The Council of the Jackson County Medical Society, meeting this day in executive session and mindful of

the obligations of scientific medicine to the citizens of the State of Missouri hereby resolves that,

WHEREAS, The State of Missouri has set up requirements which every practitioner of medicine must meet as a requisite to licensure, and

WHEREAS, The medical profession has for many years cooperated with governmental agencies by maintaining the highest professional standards for the protection of public health in the communities and hospitals of this state, and

WHEREAS, Persons professing to practice a healing art of one form or another are being allowed to practice medicine in all its branches without proper license so to do, and

WHEREAS, This practice on the part of healing (?) cults amounts, in Missouri, to confiscation of rights and property of duly licensed doctors of medicine, and a lowering of the standards of community and hospital practice in many localities in this state, therefore be it

Resolved, That the Council of Jackson County Medical Society go on record as instructing its delegation to the State Association Meeting at Excelsior Springs on April 10 to 12, 1939, as follows:

1. To call the attention of the State Board of Health to these known facts and request immediate corrective action.

2. To report to the Bureau of Medical Education and Hospitals of the American Medical Association all standardized hospitals, known or hereafter discovered to be permitting practice therein of cultists or others not licensed to practice medicine in Missouri, as determined by a survey by Councilor Districts, by incumbent Councilors of the State Association.

3. To request that wherever a locality exists which cannot provide adequate medical care for the sick and afflicted or wherever properly trained medical personnel does not exist to carry on the preventive medical program of the State Health Department, the Commissioner of Health of Missouri be requested to notify the President of the State Medical Association so that he, in turn, may take proper steps to notify eligible physicians of the vacant field for medical practice or public health work as the case may be, therefore be it further

Resolved, That a copy of this resolution be forwarded at once to the officers of the State Association and to the Commissioner of Health, State of Missouri.

OBITUARY

HARRY C. PAYNE, M.D.

Dr. Harry C. Payne, Paris, a graduate of the University of Missouri School of Medicine, Columbia, 1903, died January 28 at his home after a year's illness, aged 60 years.

Dr. Payne was born in Monroe County and began his practice in Paris after completing his medical studies. He remained in active practice until a few months before his death. He had restricted his practice to seeing patients in his home for several months before giving up his work entirely.

He is survived by three daughters, one sister, a half brother and two grandsons.

CHARLES V. STEWARD, M.D.

Dr. C. V. Steward, Bolivar, a graduate of the Missouri Medical College, St. Louis, 1886, died at Florence, Arizona, on March 11, aged 81 years. He and his wife had spent the last several winters in Arizona.

Dr. Steward was born in Cedar County. He received his early education in the county schools and the Morrisville College. After completing his medical studies he began practice in Elkton. He had practiced in Polk

and Hickory counties for fifty-three years at the time of his death and had spent the last twenty-three years in Bolivar.

He was elected an honor member of the Dallas-Hickory-Polk County Medical Society in 1934.

Dr. Steward is survived by his widow, Mrs. Rosa Pitts Steward, one daughter and two sons who are physicians practicing in Florence and Coolidge, Arizona.

LYMAN ROBERT FORGRAVE, M.D.

Dr. L. R. Forgrave, St. Joseph, a graduate of Central Medical College, St. Joseph, 1899, died March 9, aged 62 years.

Dr. Forgrave was born at Leon, Iowa. His family moved to St. Joseph when he was about 14 years old. He attended the public schools in St. Joseph before studying medicine.

He began his practice in Colon, Nebraska, and after two years took postgraduate work at the New York Eye and Ear Hospital. He went to St. Joseph in 1902 and was associated for a time with the late Dr. Barton Pitts. After three years he opened his offices in the Logan Building. He was on the staffs of the Missouri Methodist and St. Joseph's hospitals. He was a member of the Buchanan County Medical Society, the St. Joseph Clinical Society, the American College of Surgeons, the St. Joseph Eye, Ear, Nose and Throat Society and the Kansas City Eye, Ear, Nose and Throat Club, being president of the board of the latter at the time of his death.

He served four years on the four man executive council of the American Academy of Ophthalmology and Otolaryngology. He was examining physician for the Missouri Commission for the Blind and a member of the Association's Committee on Conservation of Eyesight.

In 1927 Dr. Forgrave pursued special training in Vienna.

He is survived by his widow, Mrs. Elvie Eckel Forgrave, two brothers, Dr. L. Paul Forgrave and Leslie Forgrave, and a nephew, Dr. John R. Forgrave, who had planned to be associated with Dr. Forgrave after June.

Be it hereby

Resolved, That the members of the Buchanan County Medical Society express their sorrow in the loss of their esteemed brother by incorporating this resolution in the records of the Society. Be it also

Resolved, That a copy of this resolution be sent to the American Medical Association, the Missouri State Medical Association and to the bereaved members of Dr. Forgrave's family.

DR. H. W. CARLE, Chairman,
DR. CHARLES H. WERNER,
DR. FLOYD H. SPENCER.

VALUE OF GALLBLADDER OPERATION

Fifty-seven of sixty-three patients operated on for gallbladder disease before the age of 30 were consequently free of symptoms, Carl Bearse, M.D., Boston, states in *The Journal of the American Medical Association* for May 13.

Dr. Bearse's study was made in an effort to determine the course of the disease and the end results following operation in this age group. Thirty-six of thirty-seven patients with gallstones were entirely relieved; seventeen of twenty with disease of the gallbladder but without gallstones were either greatly improved or completely relieved.

He finds that "these sixty-three patients represent about 21 per cent of 300 similar consecutive operations for gallbladder disease at all ages. Operation before the age of 30 does not mean that the disease necessarily is of short duration; five patients had symptoms for five or more years and one had them for twelve years."

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

Dent County Medical Society, January 25, 1939.

Stoddard County Medical Society, January 30, 1939.

Howard County Medical Society, February 15, 1939.

Macon County Medical Society, February 22, 1939.

Johnson County Medical Society, February 25, 1939.

Morgan County Medical Society, March 21, 1939.

Webster County Medical Society, March 28, 1939.

Holt County Medical Society, March 31, 1939.

Bates County Medical Society, April 1, 1939.

Lincoln County Medical Society, April 5, 1939.

Miller County Medical Society, April 5, 1939.

Moniteau County Medical Society, April 5, 1939.

Barry County Medical Society, April 6, 1939.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Buchanan County Medical Society
Meeting of March 1

The Buchanan County Medical Society met on March 1 at 8:00 p. m. at the Missouri Methodist Hospital, the president, Dr. F. X. Hartigan, presiding. Forty members attended.

Dr. E. E. Wadlow, member of the committee on public policy, reported on the meeting at Jefferson City on February 19.

Dr. Delbert P. Johnson was elected a provisional member.

Dr. Paul Fletcher, St. Louis, lecturer on obstetrics under the auspices of the State Board of Health and Missouri State Medical Association, spoke briefly and

stated that the objective of the program was to obtain early adequate prenatal care.

A letter from the Buchanan County Society for Crippled Children, asking for contributions or memberships was read and tabled.

County work for Holt County was discussed and a motion that the Society approve the Holt County Plan was tabled.

Dr. E. E. Wadlow reported on the Clinical Society and read the program of the coming meeting March 28 and 29.

It was moved by Dr. T. L. Howden, seconded by Dr. W. T. Elam and carried that the Society contribute \$200 to the Clinical Society for 1939.

Mr. Shudde presented Group Hospital Service, Inc., and asked the doctors of the Society to enroll. It was moved by Dr. G. T. Bloomer, seconded by Dr. Cabray Wortley and carried that the Group Hospital Service, Inc., proposition be closed March 10.

Dr. Gregg Thompson, chairman of the program committee, presented a motion picture, "Traumatic Surgery of the Extremities," which was interesting, instructive and much appreciated.

O. E. WHITSELL, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society honored Dr. H. L. Cunningham, Cape Girardeau, at a dinner meeting at the Colonial Tavern, Cape Girardeau, April 10, to show their esteem and appreciation for his high character. The occasion was his completion of fifty years in the practice of medicine.

Dr. F. E. Woodruff, St. Louis, a friend and colleague for forty years, was a guest speaker.

Dr. G. W. Walker, Cape Girardeau, spoke in behalf of the Society. Both speakers reflected in their remarks the high esteem in which Dr. Cunningham is held by his fellow practitioners and eulogized his many years of usefulness and his unselfish attitude toward his profession.

At the close of the meeting Dr. Cunningham was presented with a metal desk set including two pens, a clock and a gold plate bearing the inscription "To Dr. H. L. Cunningham with the compliments of the Cape Girardeau County Medical Society to commemorate fifty years of service to humanity in the practice of medicine."

C. A. W. ZIMMERMANN, M.D., Secretary.

Perry County Medical Society

The Perry County Medical Society met at the office of Dr. J. J. Bredall, Perryville, at 1:30 p. m. April 17 with the president, Dr. B. T. Koon, Perryville, presiding.

The examination form for preschool children presented by the Perryville Parent Teachers' Association was examined and a motion by Dr. G. A. Blaylock, Perryville, that physicians charge a special rate of \$2 for this examination and that indigent children be examined free passed. It was also decided that the charge for immunization be \$1 per hypodermic plus the cost of the vaccine and that indigent children be vaccinated free of charge if the vaccine is furnished.

A letter from the Committee on Cancer of the State Association regarding the examination of indigent cancer patients was read. The secretary was instructed to write a letter to the Perry County Court stating the Society's desire to cooperate in the examination of these patients.

J. J. BREDALL, M.D., Secretary.

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GASTRIC MOTILITY IN THE HUMAN SUBJECT

CLINICAL SIGNIFICANCE

J. H. J. UPHAM, M.D.

Dean, School of Medicine, Ohio State University

COLUMBUS, OHIO

A clearer understanding of the motor activity of the human stomach should prove of clinical value in the evaluation of certain gastro-intestinal symptoms. Too, from it may be gained information of therapeutic value in the management of medical as well as certain surgical, and particularly post-operative, states. Therefore a group in the Department of Research Surgery at the Ohio State University, namely, Barron, Haverfield, Lauer, Veach and Curtis, have investigated this problem. They employed the balloon and kymograph method and with the cooperation of several willing patients have determined, over extensive periods of time, the motor properties of the human stomach under a variety of clinical conditions.

They determined first normal gastric motility and later investigated the effect of morphine and atropine upon the stomach. The more recent employment of splanchnic resection in the surgical management of certain diseases, particularly hypertension, afforded an opportunity for the investigation of this influence. One of their patients, presenting the symptom complex of vagotonia (Eppinger and Hess), revealed a hypermotile stomach together with a slowed emptying time. After extensive study about an inch of the left vagus nerve was resected. Beneficial effects ensued. This permitted an investigation of the part played by the vagus nerve in the control of stomach movement.

The effects of chronic cholecystitis, of pyloric obstruction due to ulcer and of inguinal hernia were then determined, as well as the immediate and late results of the subsequent cholecystectomy, gastro-enterostomy or herniorrhaphy. When it was found that the usual laparotomy results in a postoperative inhibition of motility lasting from twenty-four to seventy-two hours, and that this quiescent period

is then followed by one of increased activity, attempts were made to control these states. During these studies it appeared that morphine usually stimulated gastric motility, that atropine inhibited it and that the two drugs were mutually antagonistic.

It is the purpose of this paper to present the background, the methods employed and certain of the results of these studies.

METHODS EMPLOYED

The apparatus which was used has been diagrammatically presented.¹ The patient swallows a thin rubber balloon securely attached to a long rubber tube of small diameter. This is connected to a special manometer on which is mounted a writing point. The balloon is then inflated and the kymograph is started. Gastric motility is thus recorded. With a large kymograph observations may be continued for hours.

A special ink writer was devised for this bedside study.⁵ This uses ordinary fountain pen ink. It obviates the necessity of smoking the kymograph drums. This results in a great saving of time and the advantage of doing away with the effects of smoked paper is evident.

The position of the inflated balloon in the stomach was determined fluoroscopically¹ and the tube length was maintained at that constant. The patients soon became accustomed to the procedure and as a rule cooperated willingly.

When the human stomach is quiescent there is but little variation in the graphic record. However, respiratory movements may be detected. At times feeble fluctuations in the gastric tonus become evident. Carlson has described three types of contractions. In the first type the tonus fluctuations are accentuated, particularly in amplitude. In the second type there is a definite increase in both the amplitude and frequency of gastric contractions. These types may follow one another and are those usually found in normal human stomachs.

Type three contractions¹ are rarely found under normal conditions. They present increased gastric tonus, shown by the rising graph, the result of increased pressure, and an increase in the amplitude and frequency of the superimposed contractions.

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From the School of Medicine of the Ohio State University.

They represent gastric tetany which may end abruptly in a period of quiescence. The presence of type three contractions is evidence of an abnormal hypermotile state.

THE INFLUENCE OF SPLANCHNIC RESECTION^{1,3}

Bilateral resection of the splanchnic nerves as a therapeutic measure has recently received considerable attention. In 1921 Jean recommended this procedure in the management of pylorospasm, hyperacidity and gastric hypersecretion. Craig and Brown reported beneficial results subsequent to splanchnic nerve resection for essential hypertension occurring in young patients. The procedure has been further developed by Adson, Peet and Heuer.

Impressed by the encouraging results recently reported by de Takats and his associates our group accomplished bilateral splanchnic resection on two patients with juvenile diabetes. This resulted in some improvement as shown by metabolic studies as well as by the lesser amount of insulin subsequently required. These results will not be evaluated at this time save to state that the diabetes persisted, although in a lesser degree.

With the willing cooperation of these patients it then became possible to determine the effects of bilateral splanchnic resection upon the motility of the human stomach. These observations have been reported in detail elsewhere^{1,3}; consequently this phase of the work will be reviewed only briefly.

Our group observed, relatively soon after unilateral splanchnic resection, only brief periods of activity alternating with intervals of quiescence. There may have been present at that time the stimulating effect of the operative trauma to the nerves. However, as degeneration occurred the gastric motility became intense and persistent. There was an increase in both frequency and amplitude. At times type two contractions would persist for as long as six hours, which is quite abnormal.

Subsequent to bilateral splanchnic resection similar findings were noted. Type three contractions were frequently encountered. The amplitude was greatly increased. At times the strength of these contractions was such that the balloon even ruptured. Frequently intense gastric activity persisted throughout an entire observation period of from five to six hours.

Bilateral resection of the splanchnic nerves thus eliminated some inhibitory effect, one of the factors involving the motor activity of the human stomach. However, those conditions influencing the stomach through the blood or through the intact vagi were still subject to practically the same variation as in normal individuals with the splanchnic nerves intact.

It appeared that the gastric hypermotility which ensued subsequent to bilateral resection of the splanchnic nerves was mainly due to the unopposed motor action of the vagi. Nevertheless, there was

considerable postoperative variation. The experimental studies of McCrae, McSwiney and Stopford as well as those of Carlson, Boyd and Percy indicated that the type and duration of motility depended largely upon the degree of gastric tonus which was present on the day of observation.

Follow-up studies on gastric motility were also made, up to approximately seven months subsequent to splanchnic resection.³ The motility at this time was still intense and persistent. It manifested no demonstrable difference when compared with the earlier postoperative results. At no time did these patients complain of the gastro-intestinal disturbances or of the abdominal colic described by other investigators.

Observations were also made on the influence of the splanchnic nerves on the total emptying time of the stomach. The patients were given a test meal consisting of three ounces of cream of wheat, two ounces of barium sulphate and sufficient water to form a paste. Fluoroscopic observations were made at frequent intervals until the barium was no longer evident in the stomach. Observations made during the preoperative control period revealed a variation ranging from four hours and fifteen minutes to five hours and twenty-five minutes and averaged four hours and forty-five minutes. Following unilateral resection the emptying time ranged from three hours and thirty-five minutes to six hours and averaged four hours and forty-one minutes. There was thus essentially no change. Subsequent to bilateral resection the emptying time ranged from two hours and forty-five minutes to four hours and fifteen minutes and averaged three hours and thirty minutes. In average, the stomach thus emptied more rapidly, by one hour and fifteen minutes.

THE INFLUENCE OF THE VAGUS NERVE²

Vagotomy as a therapeutic procedure for numerous gastric disorders has been advised and accomplished by various investigators.² Subdiaphragmatic resection of the vagus nerves has been performed for tabetic crises by Exner. Schiassi recommended gastroduodenal denervation in the management of gastroduodenal ulcer. Recently Barron and Curtis² reported resection of a segment of the left vagus nerve in the surgical treatment of vagotonia, a symptom complex described by Eppinger and Hess.

Experimentation has produced extensive information concerning the influence of the vagus nerves on the gastric motor mechanism. Detailed reports have been published. Langley demonstrated that the vagus nerve may be both motor and inhibitory to the stomach, which was later confirmed by May. Others also noted that stimulation of the vagus nerve may cause either contraction or relaxation and that the actual response was conditioned by the frequency and the strength of the stimuli. However Carlson, as well as other investigators, considers that the response to stimulation is governed

by the degree of gastric tonus present at the time of stimulation.

In the patient with vagotonia our group was able to demonstrate hypermotility and hypertonicity of the stomach. However, in spite of this increased peristalsis the emptying time of the stomach was greatly slowed. Persistent type two as well as type three contractions were observed. During intense atropine medication there ensued a decrease in the duration of periods of gastric motility and in the number and amplitude of the contractions. A slight increase in the interval between contractions was also noted.

After extensive investigation it was decided to resect about 3 cm. of the left, or anterior, vagus nerve. This was accomplished uneventfully and without complications. Subsequent to this operation there ensued a definite decrease in the activity of the stomach. The clinical results were also definitely beneficial. The frequency and amplitude of the contractions diminished and there was an increase in the periods of inactivity. Follow-up observations were made on this patient for more than a year following the vagus resection. The decreased motility and tonus persisted. There was an increase in frequency and extent of periods of quiescence.

As during the splanchnic studies, observations were made on the total emptying time of the stomach. These have been tabulated.⁶ During the untreated vagotonic state there was a greatly slowed emptying time. This might be attributed to pylorospasm. During this preoperative control period the emptying time varied from five hours and thirty minutes to eight hours and averaged six hours and forty-nine minutes.

Observations made during intense atropine medication revealed a variation ranging from four hours and forty minutes to five hours and forty minutes and an average emptying time of five hours and twelve minutes. The stomach thus emptied more rapidly by an average of one hour and thirty-seven minutes.

A considerably greater change occurred after partial resection of the left vagus. The variation then ranged from two hours and forty-five minutes to three hours and fifteen minutes. At this time the stomach emptied more rapidly by four hours than during the preoperative control period. This decreased emptying time persisted for more than a year. At the end of five months it was about two hours. At this time gastric motility was definitely decreased.⁵ This decreased emptying time was consequently attributed to the cessation of pylorospasm with a resultant more patulous pylorus.

Certain unfavorable effects following vagotomy have been described. None save beneficial effects were noted in this patient. Frequent clinical, laboratory and roentgenologic studies failed to reveal evidence of other gastro-intestinal abnormality subsequent to this procedure. There was a definite clinical improvement with a conspicuous gain in weight.

Contrary to the findings of Exner and Latarjet no evidence of postoperative atony or dilatation of the stomach was observed either as an immediate or remote complication. A definite decrease in the emptying time of the stomach ensued. These findings correspond with those reported by Hughson.

THE INFLUENCE OF HEMORRHAGE ON GASTRIC MOTILITY

Carlson found that hemorrhage produced a temporary increase in tonus and in the intensity of the contractions of the dog stomach. His explanation for this was that tissues deprived of nutritive substances possibly liberated a hormone which acted on the neuromuscular apparatus of the stomach to produce the hunger contractions. By acute hemorrhage there was thus induced an acute starvation.

As a consequence gastric motility was determined in a patient subjected to repeated therapeutic exsanguinations in the management of polycythemia vera. Frequent control studies revealed that the gastric motility in this patient was essentially normal. Since this form of therapy was continued over a prolonged period, it was assumed that the element of psychic inhibition was largely eliminated. After the establishment of a control period, the arm was prepared for bleeding. As soon as the needle was inserted into the anterior cubital vein the stomach exhibited evidence of inhibition which persisted during the removal of 1600 cc. of blood. The total duration of this period of inhibition, the duration of subsequent periods of gastric motility and the amplitude of the contractions did not vary appreciably from those noted prior to therapeutic exsanguination. Therefore it appeared that the removal of 1600 cc. of blood did not appreciably alter the gastric motility. However, the experimental investigations of Van Liere, Sleath and Northup on the effect of acute hemorrhage on the emptying time of the stomach revealed that the removal of about 500 cc. of blood prolonged the emptying time in four patients.

THE INFLUENCE OF HEMATOPOIETIC DISTURBANCES ON GASTRIC MOTILITY

The nature of the gastric motor disturbances, so frequently encountered in the various anemias, is still obscure. The precise effect of depressed red cell and hemoglobin levels on the motility of the human stomach was therefore investigated. Observations were made on patients with hypoplastic anemia and with pernicious anemia in whom there was a proved complete achylia gastrica.

Repeated studies of a patient with pernicious anemia, made prior to liver therapy, revealed intense and persistent gastric motility during which there was evidence of definite epigastric distress simultaneous with the severe contractions. This hypermotility persisted during intensive liver therapy and even during the periods of marked clinical improvement.

A satisfactory interpretation of these findings is at present difficult to present. Whether the hypermotility was produced by stimulation of the gastric neuromuscular apparatus by pathological changes in the stomach, or whether it was due to the associated anacidity, is as yet undetermined. However, Lerche has remarked that in achylia gastrica food may be expelled rapidly from the stomach. The entire problem is complex and warrants further investigation.

In hypoplastic anemia continuous motility, during which contractions of high amplitude frequently occurred, was observed. However, subsequent to splenectomy there ensued an abrupt change in the gastric motility. Definite hypomotility then became evident. Whether this alteration in the motor pattern was due to the operative trauma to the vagi arborizing over the adherent stomach, or whether deprivation of splenic substance depressed gastric activity, cannot be answered with certainty. Hypomotility persisted throughout the entire period of postoperative convalescence. There was no change in the anacidity.

THE INFLUENCE OF LAPAROTOMY⁴

Motor inhibition of the gastro-intestinal tract, directly observed during the course of an abdominal section, has been noted frequently. This was originally described by Pal in 1890 and subsequently confirmed by other observers. Bayliss and Starling found that when the abdomen of a dog was opened in a warm saline bath the intestines were collapsed and motionless. Auer made similar observations in rabbits. The observations of our group are in agreement with these findings.

We determined the gastric motility on seven patients, two presenting chronic cholecystitis with cholelithiasis and five with inguinal hernia. Cholecystectomy and herniorrhaphy were subsequently accomplished. Studies were made during preoperative control periods and subsequent to each operative procedure. Since low spinal anesthesia was employed for the herniorrhaphies, it was possible to make observations during the actual hernial repair. Observations were continued subsequent to surgical intervention.

Disturbances in gastric motor function frequently have been observed in biliary tract disease. Carlson and his associates, investigating the gastric motility in a patient with gallbladder disease, observed a correlation between epigastric distress and the strong contractions of the empty stomach. Barber and Stewart also reported gastric hypermotility associated with gallbladder disease. Smith and Miller showed that irritation to the mucous membrane of the gallbladder resulted in a striking increase in the activity of dogs' stomachs.

Our observations on patients with chronic cholecystitis with cholelithiasis frequently revealed hypermotility of the stomach.⁴ Occasionally normal motility was seen. The opportunity was also taken of determining the activity of the stomach during

an attack of biliary colic. The graphs revealed continuous gastric activity throughout observation periods of up to five hours.

Contrary to these findings Ivy and Fishback reported that mild stimulation of the biliary tract inhibited gastric motility and decreased the stomach tone while distention of the biliary passages caused pylorospasm and also a marked delay in the evacuation of a barium meal. A sudden marked distention produced pylorospasm with nausea and vomiting. This was interpreted by Ivy as being responsible for the dyspeptic symptoms of gallbladder disease. He did not think that the pains of biliary colic were due to pylorospasm because the type of referred pain was different; also because biliary tract pain may be demonstrated subsequent to subtotal gastrectomy.

Carlson and Litt have shown that motor disturbances of the pylorus may be induced not only by local pathological conditions of the stomach and duodenum or by abnormal states of the central nervous system but also by excessive irritation of the nerves of the abdominal viscera.

Our group found that subsequent to cholecystectomy there ensued a period of quiescence followed by an intense gastric motility with a definite increase in the amplitude of the contractions. This hypermotility persisted for approximately three weeks, at which time it gradually decreased and approached the preoperative level.

By having the patient press an electric key attached to a signal magnet it was possible to correlate certain subjective sensations with the associated phase of gastric motility. During the first postoperative week, the patients complained of epigastric distress which ran parallel with the intense contractions and which they interpreted as "gas pains." As a late manifestation of hypermotility the patient experienced intense hunger.

Gastric motility was determined on five patients with inguinal hernia. Herniorrhaphy was eventually accomplished under spinal anesthesia in four patients and under gas-oxygen-ether in the fifth. Observations were made during a prolonged preoperative control period, during the course of the operation on those patients with spinal anesthesia and for months subsequent to the herniorrhaphy. Uniform results were noted.

During the preoperative control period the gastric motility was essentially normal.⁴ However, observations made on the morning of the operation to note the effect of emotional disturbance due to anticipation of the surgical procedure revealed frequent short periods of intense gastric activity. These findings were contrary to those reported by Cannon, Todd and Ivy who found a state of gastric inhibition. In many instances we noted a relationship between the vague epigastric discomfort and the intense contractions of the stomach. Hypermotility associated with emotional states has also been described by Barber and by Hughson.

During herniorrhaphy there was complete gas-

tric inhibition which persisted throughout the operation and for from twenty-four to seventy-two hours subsequently. At the end of this period there was a return of gastric motility. This manifested itself by a gradual rise in tonus, superimposed upon which were feeble contractions. Twenty-four hours later definite hypermotility became evident. During this hypermotile period the patients complained of epigastric distress interpreted by them as "gas pains." This sensation persisted for about a week postoperatively. However, the hypermotility was continuous for from two to three weeks. As a late manifestation of this increased gastric activity the patients complained of intense hunger. The hypermotility eventually decreased and gradually approached a normal range prior to discharge from the hospital.

THE INFLUENCE OF PYLORIC OBSTRUCTION AND OF GASTRO-ENTEROSTOMY

Extensive studies of the stomach motility were made on a patient presenting the clinical picture of pyloric stenosis subsequent to gastric ulcer. The stomach was greatly dilated and decompensated. Gastro-enterostomy was eventually accomplished after which the studies were continued for nearly five months.

The gastric motility before operation was decreased. There were, irregularly, more accentuated peristaltic waves; however, the stomach continued in a state of low grade ineffective activity. The emptying time was greatly increased. Subsequent to gastro-enterostomy the stomach remained quiescent for sixteen days. Following the postoperative quiescent period activity was gradually resumed and eventually normal periods of quiescence and of motility were observed. Clinical relief ensued.

A late postoperative study, made 134 days after the gastro-enterostomy, showed a more normal gastric motility. The emptying time was then normal and the patient remained symptom free.

THE EFFECTS OF ATROPINE AND MORPHINE⁵

Throughout our studies atropine was consistently found to be inhibitory to gastric activity. In case the stomach was relatively inactive as little as 0.3 mg. sufficed to cause relaxation and cessation of the rhythmic contractions. However, in case of high tonus and frequent contractions, it was more difficult to produce complete inhibition by atropine administration. In this instance 0.3 mg. produced considerable relaxation but it was not sufficient to prevent rhythmic contractions completely. Larger doses were required. This observation was made after a six hour fast and four days preceding herniorrhaphy.

The administration of morphine counteracts the inhibiting effect of atropine. This observation was made after a fourteen hour fast and several days preceding herniorrhaphy. The injection of 0.3 mg. of atropine resulted in the immediate relaxation of an active stomach. Respiratory waves are still evi-

dent. After five minutes a gradual increase in tonus began. After six minutes the injection of 15 mg. of morphine sulphate resulted in an immediate, pronounced and sustained increase in tonus together with superimposed rhythmic contractions. These were even more frequent than those preceding atropine administration. This increased tonus gradually diminished. However, the rhythmic contractions persisted. At the end of ninety-eight minutes activity was still present.

The action of morphine upon the human stomach was found to be predominantly motor. Inhibitory effects were infrequently observed; however, they occurred inconstantly when the gastric tonus was low. Too, the motor effect of morphine could be counteracted by atropine administration.⁵

SUMMARY

Studies made on two patients, using the balloon and kymograph method, revealed intense persistent gastric motility following bilateral resection of the splanchnic nerves. This persisted for at least a year subsequently. After unilateral resection there was essentially no change in the emptying time of the stomach. Following bilateral resection the stomach evacuated the test meal one hour and fifteen minutes sooner than during the control period.

In a patient with vagotonia the gastric motility was prolonged and frequently intense. Subsequent to atropine medication there was a slight decrease in the duration of periods of motility associated with a corresponding increase in the duration of periods of quiescence. The amplitude of the contractions was decreased while the interval between contractions was increased. After resection of about an inch of the left abdominal vagus nerve the duration of periods of gastric activity was greatly diminished. There was a definite decrease in the number and amplitude of the contractions with an increase in the interval between contractions.

In the untreated vagotonic stomach, the emptying time was prolonged. During atropine medication it was decreased by one hour and thirty-seven minutes. Subsequent to left vagus resection the stomach evacuated its contents four hours sooner than during the control period. This decrease in the emptying time persisted for at least a year. No unfavorable clinical results were encountered subsequent to left abdominal vagus resection.

Studies made on the effect of acute hemorrhage revealed essentially no change in gastric motility following the removal of 1600 cc. of blood. In pernicious anemia hypermotility was noted. This persisted even during intensive liver therapy and during periods of marked clinical and hematological improvement.

In hypoplastic anemia there was continuous motility which frequently became intense. Subsequent to splenectomy, hypomotility ensued. This might be the result of trauma to the neuromuscular apparatus of the stomach during the operation.

In patients presenting chronic cholecystitis with

cholelithiasis there was evidence of increased activity of the stomach. During attacks of biliary colic, the motility became continuous and frequently intense. Subsequent to cholecystectomy, after early quiescence, definite gastric hypermotility ensued. This persisted for approximately three weeks. Associated with this the patients complained of epigastric distress interpreted by them as "gas pains." As a late manifestation of hypermotility intense hunger was experienced.

In patients with inguinal hernia the motility was essentially normal during the control period until the morning of operation, at which time there were short periods of intense activity. During herniorrhaphy under spinal anesthesia definite gastric inhibition ensued which persisted throughout the operation and for from twenty-four to seventy-two hours subsequently. Following this there was definite hypermotility. The subjective sensations associated with this increased motility were essentially the same as those noted subsequent to cholecystectomy.

A patient with pyloric stenosis due to gastric ulcer presented a decreased motility. However, irregular and infrequent contractions of increased amplitude were noted. Subsequent to gastroenterostomy quiescence ensued and persisted for sixteen days. There was then a gradual resumption of normal gastric activity.

Morphine is predominantly motor to the human stomach. However, inhibitory effects may occur and particularly during states of low tonus. It reverses the inhibitory effect of atropine and its motor effect is in turn counteracted by atropine.

Atropine is inhibitory to gastric motility. Its inhibitory effect may be reversed by morphine. Atropine may consequently be used in hypermotile states and to quiet normal activity. Morphine may be used in hypomotile states to stimulate activity.

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"There is no evidence indicating that human twins are any more sterile than singly born persons," declares *The Journal of the American Medical Association* for June 17. "The idea about sterility in twins comes from the freemartin situation in cattle. There is no such situation in human beings."

NASAL DIPHTHERIA

REPORT OF FOUR CASES, ONE WITH RHINOLITH

JAMES B. COSTEN, M.D.

ST. LOUIS

The incidence of nasal diphtheria without pharyngeal involvement, termed primary nasal diphtheria, is very low, ranging from 1 to 3 per cent in reports of various large series. With nasal involvement secondary to pharyngeal diphtheria included the percentage in a series of 3000 cases recorded by Rolleston^{1,2} increased from 1.5 to 41.6 per cent. One reason for infrequent observation of primary nasal cases is that constitutional symptoms increase in direct proportion to the location of diphtheria posteriorly in the nose or nasopharynx where the lymphatics are abundant and quick cervical gland involvement with greater prostration elicits more attention to the disease.

On the other hand, if the diphtheritic infection remains entirely nasal, with the usual absence of cervical gland involvement, the illness is mild enough to cause no great concern to the patient. Furthermore the capricious behavior of the Loeffler bacillus, ranging from weak virulence capable of producing a watery discharge from the nose to a foul membrane over the pharynx with profound prostration, raises the question of what really is true diphtheria. There is abundant evidence to show that a patient may acquire a virulent strain of the Loeffler bacillus, carry it in the nose, and by a process of auto-immunization (Stella³) sustain no harm, such as motor paralysis or toxic effects. After such a strain is resident about the nasal mucosa for a period, with great hazard to its community contacts, its virulence may be attenuated to an innocent grade of potency. One month or ten years later this nonvirulent strain may again be activated by one of several local tissue events.

Wilner⁴ reported three cases in which the activating effect of the removal of nasal foreign bodies was shown by membranes appearing in noses which had previously seemed to be clear and cultures showed virulent Klebs-Loeffler bacillus. O'Reilly⁵ reported a case of nasal diphtheria in a boy of 9 who showed a watery discharge from the nose with a heavy membrane one week after severe injury to the bridge of the nose. Moss⁶ described a marked increase of 205 to 885 cases of ordinary diphtheria seen in New Orleans in April, 1913. Fifteen nasal diphtheria carriers were picked up at that time, but he pointed out that the peak of the wave of cases immediately followed an endemic increase of gripe or influenza. The first of the cases reported herewith is a proved example of the activating effect of the invasion by other respiratory bacteria upon the nonvirulent strain of diph-

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Read before the International Postgraduate Assembly of Southwest Texas, San Antonio, Texas, January 26, 1939.

theria borne by the nasal carrier. On the other hand, Payne⁷ reported a large number of patients supposedly suffering from influenza during an epidemic who gave positive cultures of diphtheria from the nose. He mentioned also two cases of supposed mumps seen during an epidemic of that disease which suddenly died and postmortem nasal culture showed virulent Klebs-Loeffler bacillus.

Recognizing the extensive efforts of health departments to protect the population by immunizing procedure, and the remarkable reduction in mortality in various large cities since the use of toxin-antitoxin and the widely used toxoid, there still remains an important fraction of the nation who through ignorance or personal philosophy refuse immunizing procedures. Hence the problem of diphtheria is always present. The following four examples differ entirely as to clinical course and have only the common feature of being nasal diphtheria.

REPORT OF CASES

Case 1. Mr. N. G., aged 46, was examined April 15, 1926, for chronic nasal discharge, headache and nasal obstruction. The nose presented a picture of chronicity with watery discharge, thin crusts about all recesses and a large polyp filling the left side of the nose. After a short period of treatment the polyp was removed with a snare. Two days later the middle meatus from which the polyp arose was filled with a foul membrane and the patient complained of increased headache and general malaise. Culture of the membrane showed a virulent strain of Klebs-Loeffler bacillus. Culture from the noses of his four children ranging in ages from 2 to 10 years gave positive cultures, all nonvirulent. The patient's wife was negative on repeated cultures.

Antitoxin was given to the father and all children and nasal spaces treated with sprays of ephedrine and normal saline followed by 1:500 aqueous gentian violet. After two months two successive negative cultures were obtained on the two older children, 8 and 10 years old, following removal of the adenoids and tonsils. Handling all cultures in the health department laboratory, the children were permitted to return to school although the cultures on the father and younger children remained positive but nonvirulent.

In 1926 the 4 year old child had a severe cold followed by bronchitis and culture from the nose then showed a virulent strain of diphtheria. All were again given antitoxin after desensitizing procedures and daily cleansing of the noses was begun, using the same routine. Negative cultures were finally obtained from the entire family nine months after their recognition as carriers.

The family passed from observation but during the period described illustrated the activating effect of trauma and also invasion by various respiratory organisms upon an otherwise nonvirulent strain of diphtheria. The increased virulence was referred to by Dupuy⁸ in his study of forty-seven cases of nasal diphtheria selected from all the diphtheria records of the City of New Orleans from 1896 to 1904. Dupuy commented on the variation of the pathological picture when other organisms invade the nose, the Klebs-Loeffler organism becoming more malignant.

Case 2. M. L. S., a girl aged 2 years, was examined December 30, 1926. The illness of this child began with a profound nasal obstruction and profuse nasal discharge six days before examination. She had refused food during the previous four days. When observed on the sixth day of illness by Dr. L. L. Robertson, the nose was blocked with a grayish membrane, weeping a serosanguineous discharge over the upper lip which was excoriated. There was a marked cervical adenopathy on the left side. Daily temperature was 101 F. The patient was isolated at once in the St. Louis Children's Hospital and 10,000 units of antitoxin given without waiting for the result of culture, which was positive next day for a virulent strain of diphtheria. Patient was remarkably improved on the second day in the hospital with normal temperature. However, she continued to refuse nourishment, temperature was subnormal in spite of intravenous fluid and supportive treatment and died on January 5, 1927. The lungs were normal and death was ascribed to toxemia.

This case demonstrates the greatly increased toxicity of diphtheria in a child below 3 years of age, with cervical gland involvement as the axiomatic indication of invasion of the nasopharynx; the antitoxin was given in sufficient amount after the fourth day. The first report of the American Pediatric Society in 1896⁹ emphasized the need for prompt administration of antitoxin, giving a mortality of 4 per cent in cases treated on the first day and a mortality of 38.9 per cent in cases injected after the fourth day of the disease.

Case 3. Mr. O. A. B., aged 58, was examined November 2, 1937. Beginning with a profuse nasal hemorrhage which was checked with difficulty by nasal packing one week before, the patient bled in short attacks every day until admission to Barnes Hospital on the day examined. The physician had used various styptics and chemically permeated gauze with only temporary arrest of the bleeding. On admission to the service of Dr. W. H. Olmsted the patient showed some evidence of shock from loss of blood, was transfused and given morphine. The nose was repacked with vaseline gauze and culture made for diphtheria from a minute fragment of membrane seen in the nose. When this was returned positive for diphtheria on the following day, 10,000 units of antitoxin was given and on the third day packing was removed entirely from the nose. He was put on a nasal routine of ephedrine and saline spray

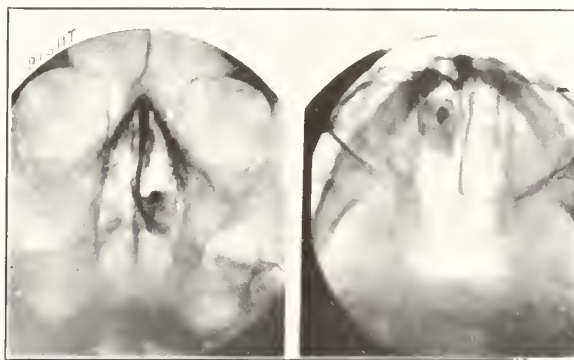


Fig. 1. A rhinolith half filling the left nasal space in case 4 as demonstrated by anterior-posterior and vertical views. Both the septum and lower turbinate were deformed by its pressure. When removed by section a glass bead was found in the center as shown in the roentgenogram.

followed by flushing of the nose with a mixture of crystal violet and bismuth-ammonium citrate.^{10,11} Negative cultures were obtained in two weeks.

No data could be obtained as to how long the patient may have been a carrier, but he had had frequent nose bleeding during the previous twelve years. Because of this he was suspected of hypertension and always found within normal limits. He had recovered watery discharge from his nose for many years.

Case 4. Mrs. W. H. S., aged 42, consulting Dr. H. S. Pruitt on December 15, 1938, gave a history of dull frontal headache and obstruction of the left nasal space. Examination revealed a rhinolith the size of a walnut which half filled the left nasal space, deforming the contour of the septum and adjacent lower turbinate. Because of the unilateral involvement of all recesses with a foul collection of crusts and pus, cultures were made. A rich growth of nonvirulent Klebs-Loeffler bacilli was obtained, cultures and virulence tests being made in the laboratory of the St. Louis City Health Department. She was immediately given 10,000 units of antitoxin and placed on the usual cleansing routine, flushing the nose with a mixture of aqueous crystal violet and bismuth-ammonium citrate solution. Two weeks later, after culture showed scant growth of the organism, the rhinolith was removed and granulations curetted from the left middle meatus. During the following weeks the left antrum was irrigated several times, instilling the bismuth violet mixture; she was kept under observation six weeks, finally obtaining two successive negative cultures.

A small foreign body was revealed in the roentgenogram within the shadow of the rhinolith, upon which concretions had deposited which proved to be a small bead. It appears that the foreign body was the disposing factor in the patient's retaining some chance infection of diphtheria.

SUMMARY

1. Primary nasal diphtheria is usually benign with little constitutional reaction except in very young children.

2. If limited entirely to the nose it is attenuated to a nonvirulent state which may be activated by trauma or infection with other bacterial forms.

3. Attention is called to the importance of removal of the adenoids and tonsils in treatment of diphtheria carriers, and to the efficiency of crystal violet, when titrated with a 1:10 solution of bismuth-ammonium citrate.^{10,11}

4. Culture of the nose for Klebs-Loeffler bacillus is indicated in any case with a profuse serosanguinous discharge with excoriation, with or without a membrane; in any chronic rhinitis with crusts, and in every chronic epistaxis without hypertension or nasal lesion.

Beaumont Building.

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INTERNAL HEMORRHOIDS

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The word "hemorrhoids" is derived from the Greek word "haima," meaning blood plus the word "rhoos," meaning flow, and the word "pile" is derived from the Latin word "pila" which signifies a ball or swelling.

The term hemorrhoids comprises the true internal hemorrhoid to which, for descriptive purposes, may be added the intero-external or combined hemorrhoid and the external hemorrhoid. In this paper I shall discuss only the internal hemorrhoids.

Proctology is probably one of the oldest specialties in medical history. According to history, pile doctors were in Egypt before Joseph was sold into bondage and "emorods" were mentioned ten centuries before the Grecian Era, or before the time of Hippocrates. Reference to hemorrhoids are found in several places in the Bible.

Moses, after enumerating a list of curses that would be visited on the children of Israel if they were disobedient, said, "The Lord will smite thee with the botch of Egypt, and with the emorods." Three centuries later the Philistines who took the Ark of the Covenant were sorely afflicted as a result and it states in the Scriptures, "and he smote the men of the city, both small and great, and they had emorods in their secret parts." The Philistines asked their priests what they must do to obtain relief, and he said, "If ye send away the Ark of the God of Israel, send it not empty; but in any wise return him a trespass offering, then ye shall be healed." The Philistines then asked, "What shall be the trespass offering which we shall return to him?" The priest answered: "Five golden emorods and five golden mice, according to the number of the Lords of the Philistines." In another part of the Bible we find, "and He smote his enemies in the hinder parts; He put them to a perpetual reproach." Biblical commentators generally agree that "emorods" and hemorrhoids are the same and mean bleeding or hemorrhage and protrusion of the bowel.

For the sake of brevity I will not discuss the minute anatomy of the anus and rectum but touch only on the anatomy of the hemorrhoid. Internal hemorrhoids are the enlargement or engorgement of the arterioles and venules from the superior, inferior and middle hemorrhoidal vessels, the intermingling of which forms the hemorrhoidal plexus which is located beneath the mucosa of the anal canal and skin. An internal hemorrhoid begins primarily as a varicosity of the superior hemorrhoidal vein. The origin is usually at the pectinate or mucocutaneous line and, passing upward, penetrates the wall of the rectum at an oblique line. Internal hemorrhoids are found always in the right posterior, left posterior and right anterior quadrants of the anus. This is because the superior hem-

orrhoidal artery divides into left and right branches, the left passing down the rectal wall undivided and the right branch dividing into anterior and posterior branches. Smaller secondary piles may be found between the primary piles.

CAUSES

There are many alleged causes of piles: (1) The absence of valves in the portal system permitting engorgement and dilation of the veins. (2) Lack of support offered by the loose attachment of the mucosa of the anal canal and by the loose stroma transversed by the veins. (3) The passage of the veins directly through the muscle coats of the rectum, thereby subjecting them to constriction during muscle contraction. (4) Frequent exposure of the narrow portion of the rectum to trauma and infection. (5) Possibly the erect position of man.

The more important and common causes are: (1) Straining at stool due either to habit or haste, constipation or diarrhea. (2) Straining at work or at play. Men who do heavy manual work and also men of a sedentary occupation who take unaccustomed exercise while on a vacation are likely to develop piles. (3) Prolonged standing of bartenders, barbers, store clerks and those in occupations who are required to spend many hours standing. (4) Pelvic causes, physiological as well as pathological, such as pregnancy, uterine fibroids, uterine retroversion, enlarged prostate or urethral stricture.

SYMPTOMS

Bleeding is naturally the first symptom of an internal hemorrhoid. At first bleeding occurs at defecation when the hemorrhoid comes down just far enough to be grasped by the external sphincter, becomes congested and bleeds either from a pinpoint rupture or from an ulceration. This is called the first degree hemorrhoid.

Prolapse usually follows the bleeding and usually is noticed first when the hemorrhoid first comes down while straining at stool. It slips back spontaneously as soon as the expulsive effort ceases. This is a second degree hemorrhoid. At a later stage the hemorrhoid comes down on walking, prolonged standing or any extra exertion and remains down until it is replaced. This constitutes the third degree hemorrhoid.

Pain is not a common symptom. Its presence suggests anal fissure or abscess and differentiation is absolutely necessary before treatment is instituted.

EXAMINATION

The majority of general practitioners have had opportunities for clinical instruction in nearly every branch of medicine and surgery with the notable exception of that large class of diseases common to the anus and rectum. It is not remarkable therefore that many otherwise skillful practitioners fail in the proper examination and diagnosis of rectal conditions.

In the examination of the patient a careful his-

tory should be taken and his symptoms recorded. Investigation of the action of the bowels should be made as to whether they are regular, the frequency of movements, consistency, whether there is straining, mucus, blood or pus, whether pain is present and if present its character and time of occurrence.

For examination the patient should be placed on his left side with the left leg extended and the right drawn up, and then with a good spotlight or headlight inspection of the anal region may be easily made. Abnormal appearance of the skin, new growths, skin tags, external hemorrhoids, pruritus and external openings of fistulae should be sought.

Next, carefully insert the index finger into the anus and observe the tone of the sphincter muscle, palpate the entire sphincter muscle between the finger in the rectum and the thumb and be sure to note any nodular masses.

Anoscopic examination follows and this can be made only with an efficient anoscope. A Hinkle-James, a Martin, Hershman or Brinkerhoff is satisfactory. I use one of my own design which is four specula in one. It consists of an obturator, an inner shell and an outer shell. The outer shell has three equidistant slots 1 cm. wide, the lengths of which are respectively 15 mm., 25 mm. and 35 mm. The inner shell has a slot 1 centimeter wide extending its full length. By rotating the outer shell upon the inner shell one may obtain a slot of a length suitable to the case at hand. Withdrawal of the inner shell with the obturator permits examination and treatment of three areas of the rectal wall with one insertion, a saving of time to the operator and of discomfort to the patient. Use of the inner shell without the outer one provides a speculum the slot of which extends its full length. This will be found particularly helpful in the surgical removal of inflamed crypts or papillae as the slot is of ample width to permit the crypt or papillae to herniate into the speculum. Due to the circular shape of this speculum, crypts and papillae may be painlessly exposed as the edges of the slot have no tendency to cut into the tissues with which they come in contact. This instrument will replace three or four specula with single slots of varying lengths.

Internal hemorrhoids cannot be felt with the index finger but must be seen, either when prolapsed or through an anoscope, to be diagnosed. It is unwise for any practitioner in making a physical examination to neglect examining the rectum because in proctologic practice and in rectal clinics it is not a rare experience to find an inoperable cancer of the rectum which has been treated over a period of many months with suppositories or pile ointments upon the patient's own diagnosis of "bleeding piles."

TREATMENT

Treatment of internal hemorrhoids is divided into three classifications: (1) palliative, (2) injection, (3) surgical.

There are few cases in which palliative treatment

is indicated. These include the cases in which a proctitis accompanies the internal hemorrhoids and in which there is severe strangulation of internal hemorrhoids. It is the opinion of many proctologists that palliative treatment should be used in all cases of strangulated internal hemorrhoids while an equal number feel that immediate operation is the treatment of choice. Thus the treatment of internal hemorrhoids is divided into two methods, injection and surgical.

INJECTION METHOD

The injection method is safe, scientific, practically painless and efficient. The injection treatment of internal hemorrhoids is an office procedure. It takes but a few minutes, is safe, almost painless, causes no disability and is free from complications when the proper technic and proper sclerosing agents are used. In the *American Journal of Digestive Diseases and Nutrition* of August, 1934, Dr. Jerome Lynch, New York, refers to the injection treatment of internal hemorrhoids as follows: "Uncomplicated internal hemorrhoids which manifest themselves by bleeding and prolapse are ideally suited to treatment by injection. It is unfortunately true that injection is a more delicate procedure than is a hemorrhoidectomy and, if improperly performed, may be followed by disastrous consequences. Therefore, it is evident that those intending to practice the injection treatment should be well equipped with the necessary instruments and solutions and should have learned the technic from an expert in the procedure."

Of the many hundreds of solutions used in the injection method of treatment, two have withstood the test of time. These are 5 per cent quinine and urea, and from 5 to 10 per cent phenol in oil. In my hands 7.5 per cent phenol in oil (Armour's cold winterpressed cotton seed oil) has been the most efficacious. During my service at the Rectal Clinic at the General Hospital I made a study of fifty cases of internal hemorrhoids which were operated on from two days to five weeks after injection. On the patient's first visit to the clinic the right posterior hemorrhoid was injected with 5 per cent quinine urea and the left posterior hemorrhoid was injected with 7.5 per cent phenol in oil. From two days to five weeks later a hemorrhoidectomy was performed and the specimens carefully labeled and sent to the laboratory.

The report of Dr. Murphy, pathologist at the General Hospital, states:

A small series of injected hemorrhoids were submitted to the laboratory for microscopic section and study. Some of these had been injected with quinine and urea, others with phenol in oil. Along with these a few untreated specimens were also submitted as controls.

The untreated specimens rather uniformly showed a loose somewhat edematous stroma containing dilated and often sacculated veins filled with blood, occasional thrombosed veins and areas of diffuse hemorrhage, very little round cell infiltration and no evidence of new formation of fibrous tissue.

In all injected specimens evidence of fibrous tissue growth was noted replacing the usual loose edematous stroma with compression and partial to complete obliteration of veins. In some of the specimens rather large thrombosed veins were seen with abundant fibroblastic proliferation and organization of the thrombi. The new growth of fibrous tissue was not uniform in all specimens being more evident in some areas than in others. In some of the sections, in addition to the sclerosis surrounding the veins, there was also evidence of an obliterating endophlebitis, in some cases being so complete that the vessels appeared as fibrous cords. Nearly all the sections showed more or less edema of the mucosa with round cell infiltration but only in one specimen was there any evidence of necrosis with active inflammation. This was seen in a small focal area in one of the specimens injected with quinine and urea.

In the specimens showing areas of diffuse hemorrhage there was evidence of new growth of fibrous tissue invading and replacing the hemorrhage.

While in some of the sections the foregoing changes were as marked in the specimens injected with quinine and urea as in those injected with phenol in oil, the average amount of sclerosis and obliteration of veins was more pronounced in the phenol and oil specimens.

I know that I am opening the way for quite a lot of criticism when I state that it is my belief that fully 75 per cent of all cases of internal hemorrhoids can be successfully treated by the injection method when proper solutions and technics are used. Most of the criticism directed at the injection method is caused by inefficient treatment by incompetent operators. There is much more to the injection treatment of internal hemorrhoids than the mere "shooting of piles." In a personal communication, Dr. George H. Ewell, proctologist of the Jackson Clinic, Madison, Wisconsin, states, "I find that less than 5 per cent of the patients that I see require surgical treatment for their hemorrhoids." In a survey made by Pruitt among ninety-five members of the American Proctologic Society who answered his questionnaire ninety-one used injection and surgical treatments for internal hemorrhoids and only four used surgery alone. This same group reported recurrence in cases treated by injection at from 1 to 15 per cent.

SURGICAL TREATMENT

There are many different technics for the surgical treatment of internal hemorrhoids but Pruitt, in his survey published in the *Transactions of the American Proctologic Society* for 1938, states, "Of 204 who operate on internal hemorrhoids, 183 or more than 90 per cent use the excision and suture method. In this group, recurrence is reported at about 5 to 10 per cent."

In those cases in which I advise operative procedures, I use the ligation and excision technic and the jack-knife position instead of either the Sims or lithotomy positions because I believe it a much more comfortable position for the patient. I use caudal anesthesia in all cases and butecaine in oil in the perianal tissues because of its prolonged anesthetic effect. In this way, we can promise our patients that they will not have any severe pain

following the operation and that the postoperative bowel movements will not cause undue discomfort.

In conclusion there are five points I wish to emphasize:

1. The importance of a thorough rectal examination in every physical examination.

2. Internal hemorrhoids cannot be felt; they must be seen in order to make a definite diagnosis.

3. The injection treatment of internal hemorrhoids is satisfactory in 75 per cent of all cases when proper technic and efficient solutions are used.

4. The injection treatment has many advantages over the radical or surgical treatment and very few disadvantages.

5. The surgical treatment is indicated in only about 25 per cent of all cases of internal hemorrhoids.

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THE OPEN AIR TREATMENT OF CHRONIC LEG ULCERS

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AND

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There is something in the air that will cure, or at least alleviate, the chronic leg ulcer. In fact, exposure to the air over a long period of time will cure many types of ulcers. We have had remarkable success with twelve cases of chronic ulcers of the leg when no other therapy seemed to help.

The hardest part of the treatment is to get the patient to follow the instructions. Most of them think a sore should be wrapped up. Many people feel that if the ulcer heals, it will cause them untold damage by "going in" and poisoning them in some other fashion. Still others believe they will get a "cold" in their ulcer should it be left exposed to the air. All these fears and prejudices must be overcome.

The irritable ulcers, which are intensely painful especially when exposed to the air, are more difficult to treat. It is difficult to obtain the cooperation of patients with this type of ulcer.

There is no known method of relieving this pain. To bear it until the ulcer heals somewhat is as good a suggestion as can be made at this time.

We doubt there is an ointment or a salve on the market today that truthfully can be said to aid in the healing of chronic leg ulcers. Many ulcers become steadily larger, deeper and more putrid under various salves and ointments.

But under the open air treatment for twenty-four hours a day these same ulcers turn from a gray sloughing crater into a red granulating surface and then into a piled up area of granulation with ultimate modified epithelization of the entire ulcer. Often this epithelization is preceded by crusting. Unless the crusts are infected underneath they are not disturbed. Sometimes a crust or scab may be left in place for months with beneficial results. Skin grafts in the final stages are very helpful.

At first patients will consent to exposing their ulcers a few hours at a time. Later, when they realize the treatment is beneficial, they will reach the ultimate goal of exposing the ulcer twenty-four hours of each day. This means to sleep with the ulcer outside the sheets at night with a protecting towel for the leg to rest upon. In warm weather the patient must guard against flies, staying in the house and using a thin protective gauze covering when outside.

They may sleep under the sheets if they so desire. No salves or washes of any kind are used. We believe the ulcers to be relatively immune to cross infection as we have never witnessed a flare-up due to newly introduced streptococci into the ulcer.

Under this treatment the leg may swell and become reddened due to the lack of support of the venous circulation of the leg. This should be relieved by elevating the limb upon a chair while the patient is seated in another chair. This position does not, contrary to popular medical belief, prevent healing of the ulcer. It probably does hinder the healing, however, due to the poor circulation resulting. No attempt is made to support the circulation of the leg by constriction bandages as they defeat the open air program.

At best, it takes from four to six months for a bad case to heal. Many times no improvement can be seen after two months' treatment but, sooner or

Table 1. *Histories*

No.	Age	Sex	Type	Duration	Cooperation	Results	Treated
1	44	M	Varicose	18 years	Good	Healed	10 mo.
2	60	F	Varicose	6 months	Good	Healed	5 mo.
3	58	F	Varicose and irritable	1 year	Poor	No improvement	3 mo.
4	48	F	Infection	1 year	Fair	No improvement	2 mo.
5	26	M	Infection	2 months	Good	Healed	2 mo.
6	70	F	Varicose	2 years	Good	Healed	6 mo.
7	62	F	Varicose	1 year	Good	Healed	5 mo.
8	53	F	Varicose and irritable	3 years	Poor	No improvement	2 mo.
9	60	M	Varicose	2 months	Good	Healed	6 mo.
10	46	F	Varicose	6 months	Good	Granulating	4 mo.
11	63	F	Varicose	8 months	Good	Crusting	5 mo.
12	36	F	Infection	2 months	Good	Healed	2 mo.
13	61	F	Varicose	3 years	Good	Granulating	7 mo.
14	64	F	Varicose	1 year	Good	Granulating	4 mo.
15	67	F	Varicose	1½ years	Good	Granulating	3 mo.

later, good results will be obtained. One of the authors saw an ulcer of eighteen years' duration healed by this method after every other method had failed. In the most severe of cases, with acute inflammation, rest in bed for as long as a month, with sulfanilamide therapy is necessary.

There are a few adjuncts to the open air treatment. The first is to inject the varicose veins near the ulcer with a mild sclerosing solution such as $\frac{1}{2}$ cc. of a 5 per cent solution of sodium morrhuate. The second is the use of sulfanilamide in 30 or 40 grain daily doses if well tolerated. This amount of sulfanilamide can be used over a period of months if well tolerated by the individual. The third adjunct is a vitamin therapy. A high B₁ and B₂ intake seems somewhat beneficial and the use of liver extract in large amounts is likewise apparently helpful.

But most important is nature's own air. Just what effect the air has upon the healing of wounds may never be known but at least it offers free drainage to the numerous saprophytic and anerobic bacteria gathered within the ulcer and does not provide the excellent culture media that a closed and dressed ulcer provides. No clothes should touch the ulcer and no bandages should be applied to the ulcer at any time.

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AMERICAN SPA THERAPY IN THE TREATMENT OF RHEUMATOID DISEASES

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SOCIAL ASPECTS

According to Dr. Edward F. Hartung and co-workers¹ of the New York Postgraduate School, in areas of 3000 population per square mile, the mortality rate from rheumatism was 1.4 based on 100,000 population. Morbidity was 6530 and years of disability 6212. The cost was \$7,455,000 annually. Of those living, the average length of time the sufferer had been afflicted was thirteen years and five months. Of those dead, the average length of time the disease existed prior to death was seven years. Only 31 per cent of the sufferers were under the care of a physician; the remainder treated themselves or received no treatment. The principal reason given for patients not employing doctors was stated to be that physicians could not help them. Obviously, they were thinking of the effect of the disease on their lives and not of their economic status.

GENERAL CONSIDERATION

History records that spas have been meccas of the afflicted since almost a century before the Christian Era, the "Rite of Baptism" being an outgrowth of the medicinal bath.

Read at the meeting of the Clay County Medical Society, November 15, 1938.

Spa communities abound in legend and folklore and until recent times mysticism permeated the atmosphere of these places. Mysticism vanished when Baudish and Welo² of the Rockefeller Institute offered some plausible explanations for some of the striking and unusual results attained through mineral water cures. The results of their extensive research were commented on editorially in the *Journal of the American Medical Association*³ as follows: "... It is demonstrated that some of the salts dissolved in water as they came out of the deep interior of the ground are in a particularly 'labile configuration.' Baudish and Welo believed that in the aging process there is a rearrangement in space of the atoms, molecules, and groups of the latter. That this is not mere assumption is indicated by the demonstrable changes in properties. The still active iron ions have various properties in common with hemoglobin or blood iron; in fact they may promote bacterial growth like the latter. The inactive or 'aged' iron salts show none of these properties which are so important biologically. Certain of their catalytic actions are speedily lost on standing."

Again the *Journal of the American Medical Association* commented editorially⁴ on an article by Baudish and Davidson⁵ as follows: "... The principal biochemical feature of the potent iron is indispensable to cellular respiration. It is by no means inconceivable that catalytically active iron may have therapeutic uses even though they still are undefinable. In this connection it should be noted that this potency is lost in the 'aging' of some mineral waters. Baudish and Welo have indeed shown that one and the same ferric oxide Fe₂O₃ in forms of different structures appears to act like two separate and distinct chemical individuals.

"Perhaps these interesting chemical observations represent new possibilities of interpreting mineral water effects analogous to what radio-activity has represented. We need not be deterred from at least discussing them despite the fact that they lend themselves readily to pseudoscientific exploitation. Nor can the circumstances be overlooked, that sojourns at the spas of today involve a radically altered regimen for the patient. Physical therapy is applied in many ways; nutrition is often profoundly altered; rest and change of environment afford still further changes. As Osborne has remarked, psychotherapy is closely associated with every kind of therapy; and there is always a profound mental effect from the treatment at medical springs. Perhaps the 'oligodynamic' effect of heretofore unappreciated molecular complexes in their waters also has a place in the combination of influences that often produce benefits."

While Baudish and Welo presented the reason for some of the unusual results obtained in the use of mineral waters, the rhyme of folklore and legend still remain and undoubtedly are a factor in engendering the spirit of hopefulness so dominant in health seekers who visit spas. It should be borne

in mind that mineral water cures are not panaceas for all human ills and that different spas are adapted to the treatment of different ailments. Climate and the constituents of the various waters should not be lost sight of. To illustrate, waters containing salts of iron, or iron and manganese, have their principal application in the treatment of conditions producing secondary anemia and disturbances of metabolism; while the alkaline saline laxative waters are of greatest use in the treatment of functional gastro-intestinal disturbances and toxic states where increased intestinal elimination is desirable. Waters containing the salts of calcium are most effective as diuretics. For bathing purposes waters containing carbon dioxide gas in great excess are especially adaptable to the treatment of cardiovascular lesions. Those containing chlorides, or chlorides and sulphates in combination, are desirable for the treatment of rheumatic sufferers. Those containing hydrogen sulphide gas are effective in treating certain skin lesions. Patients suffering with respiratory diseases should avoid resorts whose climates are not adapted to their treatment.

Time does not permit the classification of rheumatoid diseases; besides it is a controversial subject. In general, it may be said that atrophic arthritis has its inception in early life; hypertrophic arthritis has its inception in the third decade and beyond; gout, contrary to the usual belief, respects no age or economic status. The same may be said of rheumatic fever although it is more prevalent in childhood and early adult life. Myositis and fibrositis afflict all ages from the child with its "growing pains" to the senile patriarch. Neuritis is usually a complication of arthritis. All these are constitutional conditions with local manifestations. Purely traumatic conditions of course are excepted.

All rheumatoid conditions are characterized by vascular changes and altered metabolism and have as etiological factors infection, toxemia, heredity, vitamin deficiency, endocrine disturbances or psychogenic elements. In many instances there are contributing factors. The sufferers from rheumatoid diseases soon become depressed and apprehensive fearing they are on the road to permanent helplessness. The problem is to restore vascular function, reestablish normal metabolism, relieve pain, soreness and stiffness, overcome toxemia, allay fears, teach new living habits and engender in them a spirit of optimism and hopefulness.

Spa therapy has no place in the treatment of rheumatic fever or, for that matter, the febrile stage of any disease. Tuberculous joints are not to be considered in this discussion.

THERAPY

Mineral waters are complicated medicaments. The therapeutic results are not due to their predominating mineral salts alone. The most commonly accepted belief is that the ions are dissociated and electrolytic forces are released, acting

as adjuvants in the production of the resultant effects. This is an admission of empiricism but one should remember that clinical experience is the final test of any therapeutic agent.

Assuming that a complete history has been taken and physical examination made, with conclusions reached as to the patient's physical condition and mental attitude, bearing in mind that we are treating a human personality first and a disease second, the procedure will be somewhat as follows:

Immediately before breakfast the patient is given a sufficient quantity of alkaline saline water to produce a mild to moderate hydragogue effect. Following breakfast he returns to his room where probably his time will be occupied reading the morning paper while awaiting the laxative effect of the saline water. Following this period of from one to one and one-half hours no further laxative effect is experienced until the procedure is repeated the following morning. He goes for his bath treatment which consumes a period of from two to three hours. This usually consists of a mineral water tub from 96 F. to 102 F. for ten minutes; he is then removed to a cot where hot mineral packs are applied to the affected areas for a period of from twenty to forty minutes. Immediately following, he goes to the massage table where an attendant well trained in the art of manual massage gives such general or special massage as is prescribed; following this, the patient is given a salt glow and a shower, then rests in a room at proper temperature for one hour or more. During the period spent in the bath procedure, from two to four glasses of the prescribed mineral water are administered. If fever therapy is desired the mineral water tub will be from 100 F. to 104 F., from which he is removed and wrapped in blankets. A maximum body temperature of 104 F. for a duration of from three to five hours may be maintained.

Following lunch the patient is instructed to drink a glass of the indicated mineral water at each thirty minute to one hour interval and indulge in such recreation and pastime as his physical condition and tastes indicate. His routine usually can be varied to make proper rest and exercise almost imperative. There always are available fellow health seekers, ample in number to afford congenial people of similar tastes to provide companionship and pastime, which is of no small consequence in a spa cure. A word should be said as to the physical and psychical effect of the mineral water bath. The hydrostatic effect narrows the lumen of the superficial veins; the thermal effect dilates the arteries, arterioles and capillaries, relaxes the skin and superficial muscles. The heart output per minute is increased; the oxygen consumption is increased; blood pressure usually is slightly lowered; the white cell count first drops and then rises from 10 to 20 per cent; the body temperature is slightly elevated; a diuresis is produced and a moderate to profuse perspiration occurs; the metabolic rate is increased.

Dr. Franz M. Grodel,⁶ Bad Nauheim, states: "(1) By stimulation of the skin nerves, the vegetative nervous system is influenced; (2) by stimulation of the capillaries the blood stream is changed; (3) by stimulation of the skin as an independent organ, the endocrines are influenced."

The psychological effect is equally as marked as the physiological effect. The patient is impressed by the relief of his pain, the increased mobility of his joints and a general feeling of well-being; consequently his feeling of despair is replaced by a spirit of hope and cheerfulness. Proper attention to foci of infection, diet and the correction of orthopedic conditions are assumed of course. When these people have received moderate to complete relief they must be instructed on how the relief may be retained because if they return to their old habits of living it is only a question of time until they will retrograde into their former condition; therefore the close cooperation between the spa physician, the family physician and the patient is necessary to obtain lasting results.

Of one hundred consecutive cases treated recently by the writer for rheumatic diseases, nine cases showed no improvement, twenty cases showed moderate improvement, forty-three cases showed great improvement and twenty-eight cases showed a disappearance of all symptoms both subjective and objective. The varying results obtained were governed somewhat by the length of stay.

If we are to regard the opinions of such eminent men in medicine as those previously referred to, along with Fantus,⁷ Kovacs,⁸ and McClellan,⁹ the following conclusions may be reached: Rheumatoid diseases have the lowest mortality and highest morbidity rate and cause the greatest economic burden of any chronic disease. American spas possess as great curative values as do European spas. Rheumatic sufferers are on the average grossly neglected by physicians and hospitals; if after a reasonable time the rheumatic sufferer does not improve under treatment at home he should be given the advantage of spa treatment. Spa treatment offers more promise of relief for rheumatic sufferers than any other known treatment at present.

202 Thompson Avenue.

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DISCUSSION

DR. E. C. ROBICHAUX, Excelsior Springs: Dr. Baird's discussion of the treatment of rheumatoid diseases with mineral waters and baths has touched upon a subject near to our hearts and about which we have said much too little in the past. In a recent conversation with Dr. McClellan, medical director of Saratoga Springs, New York, he said that arthritis should constitute the backbone of mineral water therapy. Dr. Krusen, head of the department of physical therapy at Mayo Clinic, states in a monograph that physical therapy constitutes a most potent factor in the treatment of all forms of arthritis and that at spas generally the arthritic patient receives the momentum with which to continue his treatment at home.

There is, as Dr. Baird pointed out, a helpful psychology about spa therapy. The patient usually is in a discouraged mood. He has exhausted the patience of the home physician and as he begins the serious application of water therapy to his condition he views with open eyed appraisal many individuals in his same predicament. He hears of many others who have gotten well; he notes the improvement from day to day of himself and others; he is filled with optimism. And do not forget that there is psychical potency in such mass observation.

I endorse the doctor's recital of spa régime. The application of mineral water therapy over thirty years has convinced me that it has much merit. I have, as have we all, many patients who have returned year after year to this spa with repeated professions of faith in its benefits.

Baudish and Welo, whose work on mineral waters was referred to, have done a significant service to the chronic sufferer for they bring out many points heretofore obscure and unproved about mineral waters, and invite the conclusion that the mysterious virtue of mineral waters when imbibed fresh from the source of supply is due to an electrolytic evanescent force contained therein. Spa therapy in rheumatoid arthritis has been used successfully for centuries and it will continue so long as we apply its methods in an intelligent way.

This brings up the subject of "extravagant claims and quackery" in spa promotion; also the voluntary submission to inspection and supervision of American health resorts by the American Medical Association. You will recall that this Society expressed its approval of such action when early this year, inspired by an article by Dr. Fantus in the January 1 issue of the *Journal of the American Medical Association*, we passed a resolution requesting that such action be taken. This culminated in the appointment of the Committee on Physical Therapy of the American Medical Association, which now officially has before it the carrying out of just such a program and we sincerely hope that this movement will bear fruit at an early date.

SWELLING OF JOINT DUE TO ALLERGY

The first case in which recurrent swelling of a joint was definitely traced to allergic factors is cited by Herbert Berger, M.D., Tottenville, Staten Island, N. Y., in *The Journal of the American Medical Association* for June 10.

Elimination of the foods causing the allergy, he states, not only relieved the other allergic manifestations—gastrointestinal disturbances and hay fever—but also stopped the recurring collection of joint fluid responsible for the swelling and caused a general puffiness of the skin entirely to disappear.

He concludes from a review of the incidence and cause of the condition that all these symptoms do not constitute a disease but are due to a variety of general and local factors.

HOSPITAL MORTALITY IN THYROID SURGERY

VINCENT T. WILLIAMS, M.D.

KANSAS CITY, MO.

It seems worth while to report briefly the immediate results of thyroid surgery in an open staff hospital.

A series of 857 cases was operated upon in St. Joseph Hospital from 1928 to 1937 by thirty-seven surgeons. There were seventeen deaths with a hospital mortality of 2.1 per cent.

The decades of greatest incidence were the second and third, representing 30 per cent and 31 per cent respectively. The incidence in males rose from 7 per cent in 1928 to 30 per cent in 1936. Whether this was due to economic factors is a matter of speculation.

Laboratory examination including basal metabolism determinations rose from 1.8 per cent in 1928 to 65 per cent in 1937. Many of these patients doubtless had such examinations prior to hospital entrance. The number of patients having creatinuria determinations, cholesterol values and the more recent developments in thyroid diagnosis were few. Malignant changes were found in 0.7 per cent.

No stage or multiple operations were noted, although approximately 0.8 per cent were recurrences or other operative procedures on the thyroid gland had been done.

Of the seventeen deaths, thirteen were females and eight were patients more than 50 years of age.

There were only four autopsies, which is lower than the average postmortem record established by this institution in the last few years.

The principal causes of death in the thirteen cases not autopsied, as given by the clinician attending, were: thyrotoxicosis or thyroid crisis, five deaths; acute or chronic myocarditis, four deaths; exophthalmic goiter, two deaths; pulmonary embolism, one death, and adenocarcinoma of the thyroid gland, one death.

The pathologists' summary in the four cases autopsied were:

Case 1. (Female, aged 37 years.) (1) Thyrotoxicosis with congestion of the lungs, liver, spleen and kidneys; (2) acute pulmonary tuberculosis (incipient?), (3) hypertrophied, congested, persistent thymus gland (no weight given, "enlarged").

Case 2. (Female, aged 22 years.) (1) Acute pulmonary congestion and edema, (2) persistent thymus gland showing no definite pathology (20 gms.), (3) recent thyroidectomy.

Case 3. (Female, aged 51 years.) (1) Toxic myocarditis with acute dilatation of the heart, (2) pneumonia and pulmonary congestion, (3) slight toxic hepatitis and fatty change of the liver, (4) thyrotoxicosis (recent thyroidectomy), (5) simple cyst of the left ovary.

Case 4. (Female, aged 25 years.) (1) Hyperplastic thyroid, (2) dilatation of right auricle and ven-

tricle, (3) persistent hypertrophic thymus (65 gms.), (4) early mild bronchopneumonia.

Results of well known clinics throughout the country were obtained by direct questionnaires and from the literature for comparison. Some of the death rates were: Jackson Clinic, 1.2 per cent; Bartlett Clinic, 1.6 per cent¹; Crile Clinic, 1.9 per cent; Lahey Clinic, 0.89 per cent; Crotti Clinic, 0.8 per cent²; Hertzler Clinic, 2 per cent; Mayo Clinic, 0.82 per cent.³

SUMMARY

1. The hospital mortality in 857 cases operated upon was 2.1 per cent.

2. Other data are given.

3. The immediate results from several large clinics are given.

736 Argyle Building.

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SPECIAL ARTICLES

WELCOME TO ST. LOUIS

JAMES R. McVAY, M.D.

KANSAS CITY, MO.

As spokesman for the thirty-three hundred members of the Missouri State Medical Association, I am particularly happy to have the privilege of expressing to the Officers and Delegates of the American Medical Association Missouri's appreciation of the honor you have accorded the medical profession of this state by accepting their invitation to hold the ninetieth annual session of your organization in St. Louis. May I assure you that we sincerely hope that your visit will be most pleasant, your sessions most enlightening and your meeting most conducive of the greatest good for organized medicine and the medical profession as a whole?

It seems fitting that upon this occasion we should recite briefly some of the history of organized medicine in this state and pay passing tribute to some of those men who played important roles in that history.

One year after the founding of the City of St. Louis by Pierre Laclède Liguest in 1764 there came the Frenchman, Dr. Andre Conde. While post surgeon he carried on private practice and to him goes the honor of being the first physician in St. Louis and the state. The first American born physician to settle in St. Louis was Dr. Bernard G. Farrar who is remembered as "The Father of the Medical Profession in St. Louis." He came to the city in 1809 and was the first President of the Medical Society of the State of Missouri.

Presented by the President of the Missouri State Medical Association at the Opening General Meeting of the American Medical Association, May 16, St. Louis.

This society was formed in 1837, antedating by ten years the formation of the American Medical Association. It actually was local in character, however, and the Missouri State Medical Association as we know it today was formed in 1850. The call for the meeting was issued by Drs. William McPheeters, John B. Johnson, S. Gratz Moses, George Englemen and George Penn. The first President was Dr. W. G. Thomas. The Missouri State Medical Association has just recently held its eighty-second Annual Session although historically it is over a century old.

In 1822 the firing of a shotgun brought everlasting scientific prominence to the wounded man, Alexis Saint Martin. An opening into his stomach, the result of this wound, enabled Dr. William Beaumont to study for the first time the actual digestion of foods. The results of two hundred and forty experiments during four years of study were published in 1833 as "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." Two years later Dr. Beaumont came to St. Louis as medical officer of the St. Louis Arsenal and practiced here until his death.

In 1848 there was graduated from the Medical Department of the University of Missouri, then located in St. Louis, Dr. John Thompson Hodgen. Later as dean of the faculty of the Missouri Medical College, as President of the Missouri State Medical Association and as President of the American Medical Association he exerted a profound influence upon the medical teachings of his time. He was an ingenious surgeon and the Hodgen splint for the treatment of fractures of the femur survives to this day.

In 1889 Augustus C. Bernays performed the first gall stone operation done in Missouri. His brilliant surgical writings as well as his teaching at the Marion-Sims College of Medicine gave him an international surgical reputation.

Dr. William Carr Lane, the first mayor of St. Louis, and Dr. Ellsworth Smith, the first health officer of St. Louis, represent early civic interest of the medical profession. On the western side of the state Drs. Joseph Wood, Leo Twyman, Benoist Troost, I. M. Ridge, Thomas B. Lester and Alfred B. Sloan were early medical pioneers. Time permits but this fleeting mention of a few of the names of the men linked inseparably with the medical, the civic and the cultural advancement of the state.

Today Missouri is proud of the standards of medical education fostered by its medical schools. They represent a survival of the best of many institutions and the incessant efforts of organized medicine to elevate standards of medical education.

The Medical Department of the University of Missouri at Columbia was established as an integral part of the University in 1873. Its establishment and development through the efforts of Dr. A. W. McAlester gained for him the appellation of "The Father of Medical Education in Missouri."

Dr. Joseph Nash McDowell founded the Missouri

Medical College in 1840. It joined with the St. Louis Medical College, founded in 1841, to form in 1899 the Medical Department of Washington University. Dr. Henry H. Mudd was the first dean.

The Beaumont Hospital Medical College founded in 1886 united in 1901 with the Marion-Sims College of Medicine which was founded in 1890. In 1903 the Marion-Sims-Beaumont Medical College became the Medical Department of St. Louis University.

The University Medical College, the Kansas City College of Physicians and Surgeons, the Kansas City Medical College and the Ensworth Medical College after contributing notably to medical education of the western half of the state have ceased to exist.

The St. Louis Medical and Surgical Journal established in 1843 under the editorship of Dr. M. L. Linton gives Missouri the distinction of having the oldest monthly medical journal in America. In its pages was published the famous article of Dr. William McPheeters on the "History of the Cholera Epidemic in 1849," and Dr. Beaumont's article, "Observations on the Nature of the Gastric Juice." These and similar articles gave the publication world-wide recognition and influence.

The American Medical Association has upon six previous occasions honored us by holding their annual meetings within the state, in 1854, 1873, 1886, 1910, and in 1922 in St. Louis and in 1935 in Kansas City. May we express the wish that this meeting will be as successful as were those meetings?

Upon four occasions the highest honor, the Presidency of the American Medical Association, has been bestowed upon the distinguished members of the medical profession of the State of Missouri, in 1854 upon Dr. Charles A. Pope, in 1881 upon Dr. John T. Hodgen, in 1887 upon Dr. E. H. Gregory and in 1927 upon Dr. Jabez N. Jackson. We should like you to know that the medical profession of this state appreciates these honors to their fullest extent and we are most grateful for them.

In conclusion, may the American Medical Association continue its progress ever forward and ever upward—a progress that is firmly fixed upon that solid foundation built in part by these pioneer medical men whom we are proud to call "Missouri's Medical Heroes."

814 Medical Arts Building

HOW MEDICAL SCIENCE HAS BROUGHT PELLAGRA UNDER ITS CONTROL

How pellagra, once a mysterious and hopeless disease, has been brought under the control of science is told by Gunvor Johannesen, Madison, Wis., in *Hygeia, The Health Magazine* for July.

Pellagra is due to nutritional deficiency and is characterized by scaling and peeling of the skin, general weakness and at times convulsions. Nervous symptoms, digestive disturbances and spinal pain are suffered by some patients.

THE DEDICATION OF THE EPHRAIM McDOWELL-JANE TODD CRAWFORD MEMORIAL HOME

E. P. HELLER, M.D.
KANSAS CITY, MO.

The dedication in Danville, Kentucky, on May 20, of the home of America's pioneer abdominal surgeon to the memory of the surgeon himself and his most courageous patient was an inspiring occasion. A detailed history of Ephraim McDowell will not be given for he has been the subject of many volumes and the recipient of many tributes from that of Prof. Samuel D. Gross in 1852 down to the historic address of Dr. Irvin Abell of Louisville, at the ceremonies on May 20, 1939. These were held at the home in Danville where, on Christmas Day in 1809, the first deliberate operation for removal of an ovarian tumor was performed. Nor shall we consider in detail the life, the fortitude, the agony and the recovery of Jane Todd Crawford who, after a twenty-five minute operation under the anesthetic of prayer and a convalescent period of twenty-five days in Dr. McDowell's home, returned as she had come, by horseback, to her home sixty miles away at Greensburg. Rather would your commentator give the sentimental thoughts which ran through his mind as he observed the dedication, explored the home itself, met the descendants of those pioneer people of Kentucky, and came and went over the Jane Todd Crawford Trail, once creek bed and woodland path and now a modern motor road.

Kentucky in May must be Kentucky at her best. Her rounded, tree-covered hills, the tidy farms, the roadsides fringed with iris, climbing roses and peonies where thoughtful women had assumed a tender duty, the wilder nooks and pastures white with daisies, the rollicking colts, new calves and lambs on every side were a soothing influence in a troubled world. Only by reason of the extremely tortuous nature of the road, despite its modern surfacing, could one believe that the road into Danville was actually the trail of 1809 and of the buffaloes of primeval America. One could picture Jane Crawford in a bleaker season and in a wild, sparsely settled country riding down the dips in the road, her distorted abdomen pounding upon the pommel of the saddle. Where now a neat bridge spans a creek, there she must have forded, and there her horse sipped water. Little did she think, in her preoccupation, that the land over which she rode would be red some day with the blood of brothers in mortal combat to preserve the traditions which she and her husband, their children and their neighbors, were establishing. Lebanon and Perryville were merely wide spaces in the road in those days. As she rode out to an unknown

destiny in that December of 1809, she could not even have surmised that a boy baby 10 months old was being nurtured by backwoods parents at Hodgenville less than fifty miles away, a boy who was later to be famous as the man Lincoln. Nor could she have known of the Davis family's 18 month old Jefferson at Fairview, little more than an hour's ride to the west of Greensburg in these days of motor roads, but several days' travel in the early 19th century. One pauses in wonderment at the personalities which were cradled in this "great meadow," Kentucky, at the very moment in history to which a large gathering was paying respect upon this day in May one hundred and thirty years later.

Arriving before the McDowell Home in an out of the way section of Danville, with what is apparently a Negro lodge hall directly across the street, one is reminded of the peculiar location of other shrines and one marvels at the ability and ingenuity of antiquarians to rescue them and restore them to a more appreciative posterity. To Dr. Arthur T. McCormack and his able wife, to the Kentucky State Medical Association and its Auxiliary, to the host of custodians, to family descendants and townspeople who were responsible for this magnificent restoration, the people of Kentucky, but more especially the American medical profession, owe a debt of profound gratitude. A platform had been constructed in the street before the Home and with chairs and microphones everything seemed in readiness. Even the clouds had cleared away to admit a bright and warming sun. But the McDowell house itself was the center of attraction and pilgrims swarmed about its comfortable rooms, its hallways, out into its garden and upon the front steps. The street was closed to traffic and the entire area was filled with milling spectators and participants in the ceremonies.

In that gathering was a sizable group of outstanding American medical men foremost of whom was Dr. Irvin Abell, the retiring President of the American Medical Association, gracious, learned, democratic and just the type to represent our profession and his state at such an event. A wave of an upstretched hand and an informal call to various men and women in the crowd by that genial public health servant of Kentucky, Dr. Arthur T. McCormack, and in a twinkling the platform seemed to be fully occupied and the ceremonies begun.

Dr. Charles A. Vance, Chairman of the Council of the Kentucky State Medical Association, presided. He introduced the Rev. William E. Phifer, Danville, who pronounced the invocation in the absence due to illness of Dr. R. L. McCloud (D.D.), President of Centre College. Dr. Abell's address which followed was a masterpiece of historical facts woven into a romantic story of a pioneer doctor, the Father of Ovariectomy, and Founder of Abdominal Surgery, and his courageous patient, Jane Todd Crawford, mother of several children

Dr. E. P. Heller, Kansas City, Vice Chairman of the Council, at the request of the Council, represented the Missouri State Medical Association at the dedication of the Ephraim McDowell-Jane Todd Crawford Memorial Home at Danville, Kentucky, on May 20, 1939.



EPHRAIM McDOWELL-JANE TODD CRAWFORD MEMORIAL HOME

and seventeen years his senior, yet willing to risk her life at his hands.

The Home, unique in its dedication to doctor and patient, passed forever into the keeping of the State of Kentucky when it was accepted for the state by its young and eloquent Governor A. B. "Happy" Chandler. In an extemporaneous address filled with dates and facts, which he must have known well to use so freely, this rather amazing young executive moistened the eye of more than one of his listeners. Particularly apt was his reference to the courage of McDowell the surgeon, about to operate upon a woman for a disease formerly doomed to neglect while angry townspeople gathered outside to await the issue and if need be to apprehend him and perhaps execute him if his patient died. Everyone knew what the Governor meant by his reference to courage against odds for he was deeply involved in controversy with mine unions in the coal fields of Harlan County and was at that very moment being persecuted by his opponents for his use of the National Guard. All who had journeyed to Danville that day had passed detachments of armored trucks and machine gun companies headed for eastern Tennessee and all must have realized the grimness of the possibilities. "Happy's" last campaign with Senator Barkley also came to mind and, quite foreign though it was, the thought was inescapable that on this day this audience had perhaps heard another Kentucky man of destiny.

Following the modern stream-lined Governor Chandler, occupant of the office which was once held by McDowell's father-in-law, Governor Shelby, the state's first chief executive, was the proud great great grandson of McDowell, Dr. Edward Vernon Mastin, St. Louis, who represented the Southern Surgical Association. Missourians can well be proud of the men and women whom Dr. Mastin typifies, whose forebears had crossed into Missouri and there planted the germ of a kindred culture. Dr. Mastin's address was a tribute as much to Mrs. Crawford as to his illustrious grandparent. One had only to recall the painting by Knapp, showing the frock coated surgeon and his nephew standing over this helpless woman strapped to a table in that very house across the street from the speaker, to vision the whole array of chances for doctor and patient in those pre-antiseptic days. We of this modern age are indeed the soft recipients of benefits of the trials, the agony and the vast accomplishments of a hardy past.

Next on the program was to have been Dr. George P. Muller, President of the College of Physicians of Philadelphia and occupant of the Chair of Surgery at Jefferson Medical College, which was founded in 1910 to commemorate Samuel D. Gross who has been called "Greatest American Surgeon" and "Emperor of American Surgery," the one man whose researches and whose prestige had above all others established the validity of McDowell's position as "Founder of Abdominal Surgery." Nothing

would have been more fitting in 1939 than to have had on the platform the direct professional descendant of the master surgeon who delivered the dedicatory address in May 1879 when the McDowell monument was unveiled in the park nearby. As a keepsake of that occasion Gross had been presented with the Door Knocker from Dr. McDowell's front door, and he had responded "in a most touching manner, saying he will ever keep sacred the memento presented to him on this memorable occasion . . . as around it clustered so much medical history of an almost forgotten past," to use the words of one historian. Having, from the day of baptism into the medical guild as a student, heard of Ephraim McDowell's exploits from the lips of the late W. W. Keen and the late J. Chalmers DaCosta, two of Gross's successors, your commentator was prepared for a rare treat. It was most fortunate that so outstanding and lovable a man as Dr. Arthur T. McCormack was at hand to act for the distinguished Muller, gentleman, scholar and worthy successor of Gross, who was unavoidably absent.

Dr. J. Duffy Hancock made the closing address as Acting President of the Kentucky State Medical Association. Dr. McCormack introduced the men and women on the platform to the audience and the outdoor ceremonies passed into history with the benediction by Rev. Franklin Davis, D.D., Rector of Trinity Episcopal Church at Danville. As many as could do so crowded into the Home immediately to witness the collection of instruments used by McDowell, to hear the Honorable Chénault Hugueley as he spoke at the unveiling of the Weisiger Memorial Tablet, to listen to Dr. Louis Frank, Louisville, Past President of the Kentucky State Medical Association, as he presented to the Home the Arch Barkley Memorial Gifts. As the Home and all its treasures were now to pass into the keeping of the Department of Parks of Kentucky, the acceptance by that department's director, the Honorable Bailey P. Wootton, was the final official act of the drama of May 20, 1939.

Many and varied were the unofficial acts of exploration, of photography and of conjuring up of the past indulged in by the pilgrims to that shrine as they remained to gaze again at the room in which Mrs. Crawford spent her twenty-five minutes of prayer and agony, at the old well in the garden, at the servants' quarters, the kitchen and the Door Knocker in its new glass covered case. This knocker alone told a story far more revealing than any of the formal ceremonies to anyone who would look upon it with a retrospective gaze. Was it not likely that many a statesman of the late 18th and early 19th centuries had used that knocker to call Dr. McDowell's servant to the door so that he might enter to consult the famous physician and surgeon of that wilderness town? We know James K. Polk was successfully operated upon for bladder stone by McDowell. Was it at all unlikely that the very humble had as ready an answer to the summons

of the knocker as those in high estate? Everything points toward the conclusion that they did. Was the Dr. Adam Rankin, who with McDowell operated an apothecary's shop next door, perhaps a forebear of Dr. Fred Rankin, the famous surgeon of Lexington, who sat nearby us on the platform? There is every reason to believe he was and that he had used that old knocker often. Then, too, it has been discovered that except for one short period the house has been in possession of doctors or their heirs ever since Dr. McDowell's death so many a metallic call by day and by night for a McDowell or a Weisiger has clanged in the hallway of that grand old colonial home. Its sojourn in the possession of Samuel D. Gross, his heirs and the College of Physicians of Philadelphia is a heritage which would endow almost any knocker with glamor and certainly makes of this one a relic of the first magnitude.

Missouri may be proud that its State Medical Association, the only one besides Kentucky's, has helped in the preservation and restoration of this priceless shrine to Ephraim McDowell and Jane Todd Crawford. Individual Missouri physicians who are custodians are Drs. Fred W. Bailey, Vilray P. Blair, Edward V. Mastin and Robert E. Schluter, St. Louis; Dudley S. Conley, Columbia, and Logan Clendening, Kansas City.

After an afternoon of basking in the reflected light of glorious tradition and of contemporary stars, your commentator was content, like the Arab, to silently steal away. His small contribution, ready if he had dared to add a single word to those so ably spoken, would have been somewhat as follows:

"Mr. Chairman, Distinguished Guests and Friends:

"As the representative of the Missouri State Medical Association, on this occasion I wish to convey to you of Kentucky our sincere affection and esteem for your great men, both living and dead.

"To us Ephraim McDowell lives today in the spirit of your men of medicine.

"For our Kentucky heritage in men, women and ideals, Missouri medicine takes this occasion to render thanks."

1010 Professional Building.

When potassium chloride, alone or in conjunction with insulin, was given allergic patients with acute and chronic urticaria (severe hives) and bronchial asthma, definite relief occurred, Howard A. Rusk, M.D., T. E. Weichselbaum, Ph.D., Michael Somogyi, Ph.D., and Ernest Simms, St. Louis, report in *The Journal of the American Medical Association* for June 10. These patients showed a high increase of potassium in the blood serum during an attack.

The authors assumed that the increased blood potassium indicated a depletion of the normal potassium of the tissue cells. They were of the opinion that any substance that would decrease the blood potassium would drive the potassium back to the cells and thereby reestablish a state of balance. They found this true in that the patients were relieved when given insulin and potassium salts.

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JULY, 1939

EDITORIALS

HAY FEVER

In 1859 one of the children of Dr. Charles Harrison Blackley, Manchester, England, placed a bunch of one of the early flowering grasses (*Poa Nemoralis*) in a vase in one of the rooms of his house which he seldom entered. A few days later Dr. Blackley chanced to enter this room, noticed the vase and examined the grass. In doing so, a small cloud of pollen was detached and came in close proximity to his face. He sneezed violently and considered himself as having a short attack of his usual summer hay fever. As the episode occurred before the grasses of the meadow were in flower he was satisfied that the symptoms were due to the pollen which had escaped accidentally during the examination. Thus, he had an attack of hay fever before the regular time and he saw the possible connection between the inhalation of this cloud of pollen and his fit of sneezing. Dr. Blackley initiated a series of experimental observations extending over a period of fourteen years which proved that the inhalation of grass pollen was a cause of hay fever. Apparently he did not realize the significance of his observation but he also had shown that hay fever was not just a disease of the nose and that its cause could be determined by cutaneous testing. Because the scientific world was engrossed in establishing the bacterial origin of disease and because his work contained no new facts suitable for easy therapeutic application the work of Dr. Blackley did not attract much attention at the time of its publication. It has been only within the last twenty-five years that his experiments have been confirmed and elaborated, and now we know that it is air borne pollen which induces hay fever; we know the time of the year during which plants pollinate and their geographic limits; we know that these pollens will affect only susceptible people and, finally, we know that hay fever is one of the clinical expressions of allergy.

In this part of the United States there are three hay fever seasons: (1) The first season is due to the air borne pollen of the trees and extends from about March 1 to June 1. The pollen of elm, maple

and oak are the more abundant and are responsible for the symptoms in most patients but any tree pollen has the potentiality of inducing symptoms in some susceptible person. In most instances the symptoms are mild and of short duration. Frequently they pass for an ordinary head cold. (2) The next hay fever season is due to the air borne pollen of the grasses and extends from about the first week in May to the middle of July. Again the pollen of any grass can induce the symptoms in a susceptible person but the pollen of timothy, orchard grass and June grass are the most frequent causative agents. Other grasses may be the causative agents in regions where they are the dominant growth. The symptoms are more intense and of longer duration than those due to the pollen of trees. (3) The third type of hay fever is due in most instances to the pollen of ragweed and extends from about the middle of August to the first killing frost. The pollen of cocklebur, false ragweed, marsh elder and burweed marsh elder are also in the air during this time and will induce symptoms in certain susceptible individuals.

Since all types of hay fever are due to contact with and consequent absorption of pollen, it is evident that there are available two methods of relief: (1) to build up a tolerance for the causative pollen; (2) to avoid contact with the pollen.

Avoiding contact with pollen is the only certain way to prevent hay fever symptoms. The obvious method is to leave the region where the offending plant grows. This, however, does not develop a permanent immunity. There are several areas in the United States and Canada where ragweed does not grow so that persons whose symptoms are due to the pollen of ragweed will have no symptoms while in these localities; but no such haven exists for those who suffer with tree or grass hay fever. In general, the symptoms of all types of hay fever will be lessened or absent upon a sea coast where the prevailing winds are off the sea.

Avoidance of contact can also be practiced at home, however. Practically, it makes no difference how this is accomplished, but just so long as one keeps the pollen from alighting on the membranes of the nose, eyes and throat, one will be free of symptoms. The wearing of gauze masks covering the nose and mouth and the wearing of large glasses will prevent contact with an excess amount of pollen and hence make one more comfortable. Sleeping in a closed room or taking quarters on the top-most floor of a tall hotel will cause a change from discomfort to comparative comfort or even complete relief. Closing the windshield and the nearest window will in many instances make an automobile ride one of comfort instead of continuous sneezing. Breathing through a handkerchief held lightly over the nose or mouth will filter out enough pollen so that a train or street car ride can be enjoyed in comfort. Frequent washing of the hair, especially in women, will many times allow a more comfortable season. The use of air filters will aid

in greater comfort while in the environment of pollen. No matter how it is accomplished, the principle of avoidance of contact is basic and the results obtained will be commensurate with the diligence with which this principle is followed.

Medical treatment for those who cannot go away should consist of specific treatment, palliative treatment and advice as to how to avoid contact with excessive amounts of pollen simultaneous with the diagnostic procedures necessary to determine the existence or nonexistence of multiple sensitivity.

In order to build up tolerance for the causative pollen, patients should be treated with the pollen to which they are actually exposed and to which they are the most sensitive and whose period of pollination corresponds to the clinical history. No treatment will be successful unless the extract used is made from the substance causing the symptoms. After one has determined the offending pollen, treatment by means of subcutaneous injections, beginning with a very small dose and gradually increasing the dose until a very large one is given, has been the most successful method of raising the resistance to that point at which a hay fever sufferer enjoys comparative freedom from symptoms. The best results are obtained by preseasonal or preventive treatment, the object being to raise the resistance of the patient to the highest possible point just as pollination commences. In the usual case treatment should be started about three or four months before the onset of the hay fever symptoms, although highly susceptible patients have been observed in whom it was necessary to commence treatment as long as five months preceding the onset of symptoms. By this treatment for the spring type of hay fever, nearly one third of the patients have about 50 per cent relief, another third about 75 per cent relief and the other third are almost free of symptoms. For the fall type about one fourth are almost free of symptoms, about one third have 75 per cent relief and one fourth not more than 50 per cent relief. When these groups are considered as a whole, the great majority of patients treated preseasonally obtain in the neighborhood of 75 per cent relief. Permanent relief is obtained in many patients following from three to five years of sequential preseasonal treatment. Patients who present themselves too late for adequate preseasonal treatment will obtain results proportionate to the number of injections that can be given before pollination commences. Coseasonal or prophylactic treatment works well only in some cases. There is no generally accepted method of treatment but the consensus favors the small dose frequently given.

The failure to obtain satisfactory therapeutic results with pollen injections in hay fever can be classified as follows: (1) Incorrect diagnosis and the use of the wrong pollen solutions resulting from failure to correlate dermal reactions with clinical history; (2) inadequate or improper treatment, i. e., the administration of an insufficient amount of pol-

len solution, the termination of treatment much too long before the onset of pollination or the failure to be guided in dosage of pollen solution by local or constitutional reactions; (3) contact with unusual amount of pollen which might occur because the patient was not advised as to the manner in which contact with large amounts could be avoided, and (4) failure to realize the possibility of hypersensitivity to substances other than pollen and their influence upon the symptoms.

SUMMER DIARRHEA IN INFANTS

In the past the diarrheal diseases have accounted for many deaths among infants. It has been responsible for as many deaths in young infants as all other conditions combined. It occurs as a symptom of many different conditions, therefore, the actual number of deaths attributed to diarrhea is probably not so great as statistics would indicate because infants seriously ill from so many causes are likely to develop diarrhea as a terminal symptom, and when the original disease has been undiagnosed, diarrhea is given as the cause of death, thus accounting for the inaccurately high vital statistic mortality rate.

Even with due allowance for this fact the mortality rate from infantile diarrhea would still be unnecessarily high as, for the most part, many deaths are preventable.

Infants are much more likely to develop diarrhea than are older individuals. This is due to a number of factors. The gastro-intestinal secretions of the infant differ in composition from those of older individuals. The gastric juice contains less pepsin-rennin and very much less hydrochloric acid. The gastric juice of the infant is well adapted to initiating the processes of digestion when human milk is fed. Probably as the result of this acidity, the stomach and this portion of the intestinal tract are normally free from bacteria capable of causing gastro-intestinal disturbance. In consequence the baby exclusively breast-fed will rarely suffer from severe diarrhea. There are, however, circumstances under which the gastric and intestinal secretions may be diminished.

Infections outside the gastro-intestinal tract are the most frequent underlying causes of diarrhea occurring in infants who are breast-fed or who are receiving well constructed cow's milk formulae. This is especially true during the winter months.

Some types of parenteral infection are more likely to lead to diarrhea than others, even though the elevation of temperature may be the same. For example, the infants suffering from rhinopharyngeal infections and otitis media are in general more prone to develop diarrhea than those suffering from pyelitis. The nature of the infecting organism also appears to be a factor. Infection of the middle ear with certain strains of toxin-producing streptococci is usually accompanied by more severe diarrhea than when the infecting organism is

a staphylococcus. In none of these conditions are there any anatomical lesions in the intestine, the diarrhea is not the result of an enteritis. There are certain specific diseases, however, such as dysentery and typhoid in which definite lesions are present in the intestinal tract giving rise to diarrhea.

The common forms of diarrhea of infancy are known by a variety of names such as "acute intestinal indigestion," "fermentative diarrhea," "dyspepsia," "summer complaint," "gastro-enteritis," "cholera infantum," the latter term being used to distinguish severe types of diarrhea with marked constitutional symptoms.

If spoiled milk, that is milk partially decomposed by bacterial action, is taken by an infant diarrhea may result. Large numbers of infants have been known to develop it simultaneously following the taking of milk known to be impure. It does not necessarily occur under such circumstances but, other factors being equal, it is much more frequent in infants fed on raw milk of questionable purity than in those fed on pure sterilized milk. Milk may be definitely sour and give rise to no symptoms, whereas other samples which have little alteration in taste or appearance may lead to severe gastro-intestinal disturbance. Certain bacteria are capable of decomposing milk with the formation of diarrhea producing substances more readily than other bacteria. It is known that in certain lactic acid producing organisms such as the *Streptococcus lactis* and *Bacillus bulgaricus* produce relatively harmless substances by their action on milk. In fact, the chief product of their action, lactic acid, exerts a marked inhibitory effect on the growth of many varieties of more or less harmful organisms.

Conditions which favor the production of diarrhea are: (1) the presence of bacteria in the upper intestinal tract; (2) the presence of a suitable culture medium; (3) a diminished amount of those normal secretions of the intestinal tract which have an antiseptic action, and (4) a hyperirritable intestinal tract.

Diarrhea may result from other causes than the action of bacteria on food. Even in the absence of bacterial action strong solutions of sugars have a laxative effect similar to that of concentrated solutions of mineral salts, that is to say, a hydragogue cathartic action. Fats and oils have to some extent the same mechanical effect on the intestinal tract as do the laxative mineral oils.

If the foregoing considerations are borne in mind, it is readily understood why diarrhea should arise under certain conditions. Contaminated milk as a cause of diarrhea has already been mentioned but overfeeding with pure sterilized food may also result in diarrhea. The reason for this is that when a large amount of food is taken a longer time is required for complete digestion and absorption and unabsorbed food remaining in the intestinal tract may be acted upon by bacteria. An excess of sugar in the food provides an especially favorable me-

dium for bacterial growth and for this reason is one of the chief causes of diarrhea. Protein is not an especially favorable medium for those bacteria which are associated with diarrheal diseases of infancy and, therefore, is not a common cause.

Many infants with diarrhea also suffer from other manifestations such as vomiting. Indeed, vomiting and diarrhea are often part and parcel of the same condition.

The stools in acute intestinal indigestion may be as many as ten or fifteen a day or even more. The intestinal contents are hurried rapidly through and absorption is poor. This leads to a change in the consistency of the stools so that they become soft or watery. The bile pigment, normally greenish in the upper intestinal tract, passes through but slightly altered and colors the stools various shades of green. A certain amount of free fat escapes digestion and absorption and may appear in the form of minute globules. Sugars which have escaped absorption in the upper portion of the intestine are readily broken up by the bacteria normally present in the colon. Organic acids and a considerable amount of gas may be produced under these circumstances and this leads to the passage of stools acid in reaction and frothy in appearance. Continued irritation of the intestinal tract leads to the pouring out of mucus and this is mixed with the stools and small balls of the mucus resembling curds may also be present. Blood may appear in small amounts as the result of intense peristaltic activity but if persistently present in the stools, and if accompanied by pus, is evidence that there is actual ulceration of the wall of the intestine. This is a condition to be differentiated from ordinary diarrhea.

Slight fever may be present at the onset of acute intestinal indigestion but high or continued fever is the exception and if present should lead to a search for other causes than the gastro-intestinal disturbance. The urine is diminished in amount but is not abnormal otherwise except in severe cases.

A loss of weight is usual. The course of the disease varies with the previous condition of the infant and the promptness with which treatment is instituted. Mild attacks in strong infants may be relieved within a day or two. Other infants may suffer from mild or severe diarrhea for weeks and finally succumb to starvation or infection. A severe attack of diarrhea with large watery stools of the type often referred to as "cholera infantum" may result in death in a few days, especially if the infant is in bad nutritional condition at the onset.

The most serious consequences of infantile diarrhea are two: starvation and water loss. Starvation is due to a failure to digest and absorb a sufficient amount of food to meet the requirements of the body. During the course of diarrhea the loss of food in the stools and the necessary reduction in the intake of food makes it necessary for the body to use stored-up food materials to supply the neces-

sary requirements. The end result is a condition of malnutrition which leads to athrepsia. In severe gastro-intestinal indigestion the loss of water by way of the stools and the diminished intake as the result of vomiting frequently leads to a drying out of the body and when this desiccation becomes extreme a characteristic clinical picture is presented. The end result often is death.

A careful case history is essential in arriving at a diagnosis as to the type of diarrhea. It is necessary to know the character of the previous feeding, whether the food mixture has been of suitable composition or whether any constituents have been deficient or present in excess; whether the feedings have been given at proper intervals and, in the case of artificially fed babies, whether the formula has been prepared from raw or heat treated milk; whether articles of diet other than milk have been given, and whether or not dysentery has been epidemic in the neighborhood. It is also important to know whether the infant has shown any symptoms of infection outside of the gastro-intestinal tract such as a cold in the head or running ears.

If the food has been one of suitable composition, fed at proper intervals and has previously agreed with the infant, it safely may be assumed that the diarrhea is due to some extraneous factor, most likely a parenteral infection. Such an infection should be suspected particularly if fever and vomiting have preceded the onset of diarrhea. In order to confirm the diagnosis, a careful search should be made for the presence of infection. The nose, throat and ears, especially, should be carefully inspected. The urine should be examined microscopically for the presence of pus. Ordinarily, however, pyelitis is less likely to lead to diarrhea than either rhinopharyngitis or otitis media. If high temperature is coincident with the development of diarrhea and if no parenteral infection is discovered, one may suspect the presence of bacillary dysentery, but an absolute diagnosis cannot always be made early in the course of this disease. Later, the appearance of blood and pus in the stools or the finding of dysentery bacillus on stool culture may make the diagnosis clear.

Infantile diarrhea is largely preventable. Short periods of diarrhea may occur in almost any infant even with the best of care, but serious or fatal diarrhea need not occur if an infant is fed properly and lives under good hygienic conditions.

Infants, whether on the breast or bottle, should not be overfed. They should not be over burdened with unnecessary clothes nor confined to poorly ventilated quarters. In the case of artificially fed infants the milk should invariably be boiled or pasteurized a reasonable time before use and preserved in a cold place free from contamination until used. Cream and top milk mixtures are best dispensed with and sweetened condensed milk should be banned. During warm weather infants should be given smaller amounts of food and more water.

Once the symptoms of gastro-intestinal indigestion have begun the indication is to diminish or to completely withdraw food. An occasional loose stool or slight increase in the number of stools in a day are not invariable indications for a change in food providing the infant continues to gain and exhibits no other symptoms. During extremely hot weather, however, even slight gastro-intestinal disturbances should receive serious consideration. Mild attacks in breast-fed infants often clear up when the milk intake is diminished by allowing the infant to nurse for only a very short period of time, water being given to provide a sufficient volume of fluid to satisfy the infant. In bottle-fed infants a slight attack may clear up when sugar is left out of the formula and the amount of milk at a feeding moderately diminished. In the more severe types of indigestion a period of starvation is generally essential. It can be readily understood that when unabsorbed food in the intestine is being decomposed by bacterial action that the introduction of more food into the intestine is simply adding fuel to the flame. If, on the other hand, a period of starvation is instituted, the intestine quickly empties itself of food remains and the upper intestine becomes relatively bacteria free. The irritated mucous membrane and the whole alimentary tract is given a chance to rest and recuperate. When diarrhea is sufficiently severe to call for a period of starvation, it is severe enough to empty the intestinal tract without the additional aid of cathartics. The latter are often used to the detriment of the patient. When a child is known to have been fed some improper form of food, it may be desirable to administer a cathartic to remove the offending material before it has had a chance to produce harm. One of the best cathartics for this purpose is castor oil; calomel is objectionable.

The duration of the period of starvation depends upon the severity of the diarrhea and the nutritional condition of the child. A mild case may respond to a twelve hour starvation period, a more severe type may require twenty-four hours. In the case of some infants a fairly long starvation period may be desirable as far as the gastro-intestinal tract is concerned but the infant's nutritional condition may be such that even a short period of starvation would seriously endanger life. It is often a difficult matter to decide just how long a period of starvation is justifiable. The infant's life is in the balance; if fed too soon or too much the diarrhea becomes worse, if starved too long he dies from inanition. During the starvation period the infant should receive water by mouth at frequent intervals and in as large amounts as can be given. If water is refused, it may be sweetened with a saccharin tablet ($\frac{1}{4}$ to $\frac{1}{2}$ grain to a pint).

The object of starvation is to prepare the intestine to receive food but it must not be forgotten that the infant as a whole must be treated as well as his intestinal tract. If too much attention is centered on the stools and starvation is continued un-

til the stools are of an entirely satisfactory character the infant may die in the meantime of starvation or water deficiency. Food must be given at the earliest moment at which it can be digested and water should be given in large amounts from the very beginning.

The food given infants following the fasting period must be one that is easily digested, has a sufficient caloric value and yet does not readily undergo undesirable bacterial decomposition in the intestine. Small amounts of breast milk can generally be tolerated by infants convalescing from diarrhea. In some instances, however, when any considerable amount of breast milk is given the diarrhea again recurs. This is probably due to the high sugar content of breast milk. For this reason it is often desirable to give some other form of food either alone or alternating with breast milk feedings. Whatever food is given, it is essential that only small amounts should be offered and increases should be made only as rapidly as the infant's digestion permits.

One of the best artificial food preparations to start these youngsters on after a severe intestinal upset is a modified, acidified milk which may be made from cultures of *Bacillus bulgaricus* or acidified with lactic acid, U. S. P., which may be added to the formula in proportion of 1 dram to the pint. There are also several preparations of powdered lactic acid milk which are quite satisfactory and may be prepared by the mere addition of water. These powdered preparations serve equally as well as the cultured or milk acidified with the lactic acid.

Evaporated, unsweetened (not sweetened) milk preparations such as the customary canned milks make a satisfactory formula for beginning feeding after a diarrhea attack. These evaporated milks may be prepared by simply diluting with sterile water or a cereal mixture of barley or imperial granam. The diluted fluid may be used in proportion of two thirds milk to one third of the cereal water. This may be made stronger gradually as improvement is noted. This serves two purposes for it aids very materially in keeping up the caloric value of the food and it is definitely known that babies stand a cereal feeding much more readily than they do a stronger straight milk formula.

The substitution of skimmed milk for whole milk in making up a formula or the giving of undiluted skimmed milk is often successful in mild cases of diarrhea. It must be remembered that skimmed milk has a low caloric value, only half of that of whole milk, and therefore such form of feeding should not be continued for any considerable length of time. This skimmed milk may also be diluted with the cereal water and there is no reason for withdrawing this cereal diluted liquid as it in itself is a good food for the growing infant.

A protein milk works very successfully in a few of these diarrhea cases in infancy and the protein milk may be obtained in the powdered form from

the different concerns manufacturing baby foods. It must not be continued over a long period of time as the caloric value is exceedingly low and the baby is subject to starvation rapidly.

In older children who have been accustomed to taking the solid foods, children above 1 year of age who are normally taking whole milk, vegetables, cereals and the routine diet, it is quite essential to stop milk immediately and give them a starvation period of a few hours. They then may be given some of the carbohydrate foods which are quite easily digested such as cream of wheat, rice, farina or baked potato but no vegetables or stewed fruits are allowed during this time. The children are gradually put back on skimmed, boiled milk, and as the condition improves the milk may be made half skimmed and later the whole milk with the entire cream content may be given, but always boiled. The vegetables and fruits may be given gradually at this period in amounts tolerated by the bowel.

If one would impress the parents of children under 2 years of age that they should not have fresh uncooked fruits such as fresh apples, plums, grapes, peaches or berries, the problem of diarrhea would be very much lessened. Fruits, if given uncooked, during the hot season are easily fermented and as a result bowel conditions are easily excited. Raw vegetables, however, do not ferment so easily and may be allowed.

During the summer months the milk should always be sterilized, either by boiling or pasteurization, and should be kept stored with ice until used unless some canned evaporated or powdered milk preparation is being fed. The boiling does not destroy sufficient vitamins to be objectionable as those are well taken care of by giving cod liver oil and the citrous fruit juices which, of course, should be stopped during an attack of diarrhea.

NEWS NOTES

The Kansas City Urological Society elected the following officers at a meeting on June 1: President, Dr. Ross M. Newman, Kansas City; secretary-treasurer, Dr. Hjalmar E. Carlson, Kansas City.

Dr. Logan Clendening, Kansas City, delivered the Beaumont Lecture on the history of medicine at Yale University School of Medicine on April 21. His subject was "Medicine in Paris at the Time of Oliver Wendell Holmes' Visit."

The following physicians were appointed on the State Board of Health by Gov. Lloyd C. Stark and the appointments confirmed by the Senate: Dr. C. H. Neilson, St. Louis; Dr. E. Sanborn Smith, Kirksville; Dr. George W. Gay, Ironton; Dr. John Aull, Kansas City, and Dr. W. M. West, Monett.

Dr. Doyle C. McCraw, Bolivar, was appointed a member of the Board of Managers of Eleemosynary Institutions; Dr. Charles E. Hyndman, St. Louis, a member of the Board of Nurses' Examiners, and Drs. Fred. J. Taussig, St. Louis, and Paul F. Cole, Springfield, members of the State Cancer Commission.

Dr. Frank G. Nifong, Columbia, was honored on the occasion of his retirement after fifty years of practice by the Boone County Medical Society with a barbecue at the Pinnacles north of Columbia on June 8. Approximately 150 physicians and guests from all parts of the state attended. Dr. Nifong has practiced in Columbia since 1908. He was born, the son of a country doctor, in Fredericktown in 1867. He received his premedical education at Transylvania College and received his degree in medicine from the Missouri Medical College in 1889. He obtained a much sought after internship at the city hospitals in St. Louis and remained to practice in St. Louis until 1905 when he moved to Columbia to take a post in the University of Missouri School of Medicine. He held this post for three years and then resigned to devote his entire time to surgery.

For the last twelve years Dr. Nifong has been in charge of the health program at Stephens College, Columbia, and surgeon for the college and will remain as advisor. The instructional committee has named him one of its perpetual members.

Dr. Nifong served the Association as President in 1928. He was president of the Boone County Medical Society in 1933 and served as delegate to many annual sessions. He was a member of the advisory committee of the Inter-State Postgraduate Association of North America in 1928 and is a senior member of the Western Surgical Association.

The following members accepted invitations of the Committee on Postgraduate Course to deliver addresses at recent meetings of component societies:

Dr. Joseph D. James, Springfield, was a guest of the Laclede County Medical Society at Lebanon on April 4 and spoke on "Obstetrics."

The Cole County Medical Society had Dr. August A. Werner, St. Louis, as a guest on April 19 at Jefferson City.

Drs. E. Kip Robinson, Claude J. Hunt and David S. Dann, Kansas City, were guests of the Lawrence-Stone County Medical Society at Mount Vernon on April 25.

Dr. E. Lee Dorsett, St. Louis, was a guest of the Callaway County Medical Society at Fulton on April 27 and spoke on "Eclampsia."

On May 26 Drs. Andy Hall and O. P. Hampton, St. Louis, were guests of the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society at Farmington. Dr. Hall spoke on "Transurethral Prostatic Resection" and Dr. Hampton talked on "Common Fractures Resulting From Highway Accidents."

The Phelps-Crawford County Medical Society had Dr. O. P. J. Falk, St. Louis, as a guest at Rolla on June 12. Dr. Falk spoke on "Pneumonia Therapy."

Drs. G. V. Stryker and C. Malone Stroud, St. Louis, were guests of the Six County Medical Society at Sikeston on June 15. Dr. Stryker spoke on "Common Skin Diseases" and Dr. Stroud on "Hay Fever."

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Calco Chemical Co., Inc.

Sulfapyridine—Calco

Tablets Sulfapyridine—Calco, 0.5 Gm. (7.7 grains)

Lederle Laboratories, Inc.

Sulfapyridine—Lederle

Tablets Sulfapyridine—Lederle, 0.5 Gm. (7.7 grains)

Eli Lilly & Co.

Estriol—Lilly

Pulvules Estriol, 0.06 mg.

Pulvules Estriol, 0.12 mg.

Pulvules Estriol, 0.24 mg.

Estrone—Lilly

Ampoules Estrone in Oil, 0.1 mg.

Ampoules Estrone in Oil, 0.2 mg.

Ampoules Estrone in Oil, 0.5 mg.

Ampoules Estrone in Oil, 1.0 mg.

Suppositories Estrone, 0.2 mg.

Merck & Co., Inc.

Riboflavin—Merck

Ampules Riboflavin—Merck, 10 mg.

Ampules Riboflavin—Merck, 100 mg.

Riboflavin—Merck, 1 Gm. Bottle

Sulfapyridine—Merck

Tablets Sulfapyridine—Merck, 0.5 Gm. (7.7 grains)

The National Drug Co.

Undulant Fever Vaccine (Abortus and Suis)

Undulant Fever Vaccine (Melitensis)

ORGANIZATION ACTIVITIES

REPORT OF COMMITTEE ON REFUGEE PHYSICIANS

The first paragraph of the report of the special committee of the Council to study the problem of refugee physicians in Missouri which appeared in the June issue of THE JOURNAL should have read as follows:

The special committee named by the Council to study the problem created by the refugee physicians coming into the State of Missouri met in Kansas City on Sunday, March 19, 1939. There were present Dr. Daniel B. Laudau, Hannibal; Dr.

Charles Greenberg, St. Joseph; Dr. I. M. Goldberg, Polo, and Dr. A. Morris Ginsberg, Kansas City, Chairman. We were fortunate in having with us during a portion of our meeting Dr. E. P. Heller, Kansas City, who came at the invitation of your chairman.

MEETING OF COUNCIL, COMMITTEE ON CANCER AND STATE CANCER COMMISSION

Abstract of Minutes

The Council of the Missouri State Medical Association and the Committee on Cancer met in joint session with the State Cancer Commission at the University Club, St. Louis, on Sunday, June 11, at 10:00 a. m., Dr. Curtis H. Lohr, St. Louis, Chairman of the Council, presiding.

Those present were: Drs. James R. McVay, Kansas City, President; Cyrus E. Burford, St. Louis, President-Elect; R. L. Thompson, St. Louis, Treasurer; A. S. Bristow, Princeton; Curtis H. Lohr, St. Louis; R. B. Denny, Creve Coeur; William A. Bloom, Fayette; A. J. Campbell, Sedalia; E. P. Heller, Kansas City; H. L. Kerr, Crane; Eldon C. Bohrer, West Plains, and Elam J. Nienstedt, Sikeston, Councilors; D. A. Robnett, Columbia; William E. Leighton, St. Louis; Titus S. Lapp, Fulton; Edwin C. Ernst, St. Louis, and E. Kip Robinson, Kansas City, members of the Committee on Cancer; E. H. Bartelsmeyer, St. Louis, Executive Secretary; W. D. Pipkin, Monroe City, and B. L. Murphy, Hannibal, President and Secretary of the Marion-Ralls County Medical Society, and Theodore R. Meyer, Clayton, Health Commissioner of St. Louis County, by invitation. The members of the State Cancer Commission present were Mr. Frank T. Hodgdon, Hannibal, Chairman; Dr. Fred. J. Taussig, St. Louis, Vice Chairman; Dr. Paul F. Cole, Springfield; Mr. William M. Clark, St. Joseph, and Miss Dorothy Hehmann, St. Louis, Executive Secretary.

After a thorough discussion of the policy of admission of indigent patients to the State Cancer hospitals, in order that there be full cooperation between the medical profession, the State Cancer Commission and the respective county courts in the administration of the laws to the benefit of all and that the excellent aims of the law not be abused, Dr. E. P. Heller, Kansas City, proposed the following resolution for the action of the Council:

Resolved, That it be the sense of this meeting, comprising the State Cancer Committee of the State Medical Association and the Council of the Association, that

1. The State Cancer Hospital now under construction at Columbia, Cancer Hospital No. 1 at Fulton and Cancer Hospital No. 2 at St. Joseph should accept for treatment only those cases which have passed through the social service filter locally, as the law provides.

2. That the Cancer Commission make known to the county judges at large in Missouri the presence in their communities of county medical society cancer committees who are available as consultants to the physician appointed by the court to diagnose and evaluate the suspected cancer cases.

3. That an administrator, properly qualified as a hospital executive, working in cooperation with the Commission and the local courts and cancer committees, will be amply able to determine the criterion for admission to the Cancer Hospital.

The resolution was unanimously adopted by the Council and submitted to the State Cancer Commission.

The State Cancer Commission immediately went into executive session and shortly thereafter informed the Council that the Commission had approved the resolution.

THE STATE BOARD OF HEALTH

The Bureau of Vital Statistics calls attention of physicians to the revised standard birth and death certificate forms. These are the official Bureau of the Census standard certificates recommended to the State Health Department for the decade 1940 to 1949 and will be available soon to all physicians through local registrars.

The revised death certificates for the first time provide opportunity for the attending physician to indicate one of several causes to which, in his opinion, the death should be charged statistically. Work on these forms has been in progress in the Census Bureau since 1937 and several revisions have been made to make sure that they will best serve the purposes for which they were designed.

The new certificates provide for more adequate reporting of information concerning residence. To obtain more accurate birth and death rates, it is essential that the certificates carry all the information requested on residence and cooperation of physicians in this matter will be appreciated.

The following figures on maternal and infant mortality rates are taken from the final report for 1937.

The maternal mortality rate was 5.13, urban 6.97 and rural 3.64. The birth rate in rural areas slightly exceeded that in urban areas. Birth rate for the entire state was 14.36.

Infant deaths rated 56.8 per thousand with the rural rate exceeding the urban, the exact reverse of the maternal mortality situation. In both, the counties north of the river show lower rates than in the south, particularly in the southeast. Mortality from diarrhea and enteritis partly explains the excessive infant deaths in some sections. In one county, for example, the death rate from these causes was 166.9 which means that of every thou-

sand infants born alive, 166.9 died before they were 2 years old.

In one northeast Missouri county with a homogeneous middle class population totaling 10,992, the total births were 106 producing a birth rate of 9.64 which is 4.72 below the state rate. Of the 106 babies born alive, thirteen died before they were a year old. Of these, eight died before they were 1 month of age. The infant mortality rate in this county was 132.08 as compared with the state rate of 56.8. An analysis of the death reports indicates that nine of these deaths could probably have been prevented.

To help cope with these and other problems, the Division of Child Hygiene of the State Health Department supplies prenatal and postnatal literature upon request; aids schools in organizing health programs; supplies immunizing materials free to children unable to pay; aids counties in establishing and maintaining nursing services by subsidies; subsidizes local physicians to conduct infant and pre-school clinics; and aids in organizing dental health programs.

Last year for the first time since 1933 cases of Rocky Mountain spotted fever were reported in the state. All cases last year were reported from counties that border the Mississippi River. Generally, when this virus makes its appearance it will reappear at the most unpredictable periods. The State Health Department calls attention to the fact that this disease apparently is making its way into Missouri and may become a factor in the health of the citizens.

BOOKS FOR LEISURE MOMENTS

THE RELAXATION OF TECHNICAL SPECIALISTS

The complaint has often been hurled at physicians that they are technical specialists. The charge is made that they have become too narrowed in their outlook. The implied comparison is that they are inferior to their forbears of a generation or two ago. Volume IX of the proceedings of "The Charaka Club" (Richard R. Smith, New York) offers refutation to such accusations.

The Charaka Club is composed of many of the leading medical specialists living in and about New York. It is devoted to the audition of papers prepared by its members and dealing with any subject chancing to catch their individual fancy. Many of these papers display an amazing degree of concentrated literary research. Others, such as those of E. L. Keyes, are delightful fantasies in which the author allows his imagination to carry him whither it will. Frederick Peterson contributes several poems, one of them called "Illusion" being an acrostic.

Allen O. Whipple offers an exhaustive study of pre-Christian history in order to trace the survival of Greek medicine. The medical school of Gondi-Sapor preserved to posterity the lore of Greek medicine and joined with it the eager culture of the Arab. Francis S. Mathews suggests a reason that Shakespeare does not mention tobacco although it was well known in England during his life. Samuel W. Lambert writes engagingly about a lady who was sewn to a pig. The purpose of this unusual operation was to permit a graft of pig skin to

repair a defect of the thigh of the lady who had suffered a severe burn. The tribulations of both lady and pig are faithfully reproduced. Incidentally this humorless operation took place not in the Middle Ages but in the City of New York in the present century. B. Y. G.

A BOOK OF VERSE

Our education has been sadly neglected in the field of poetry. We have never developed a feeling for iambic pentameters or rhapsodical extravaganzas. But there are those who like poetry. To them we commend this volume by Emilie Chamberlin Conklin who calls it "Doctors, I Salute!" It is privately printed by the Light and Life Press, Winona Lake, Indiana.

In general the verse has much of Edgar Guest about it. The following sample is culled:

"'Twas indeed a great physician
Who, through fear of malnutrition,
Or some virulent bacilli in man's vitals, I suppose,
Worked his plan out very clearly,
When the bile ducts acted queerly,
To attach the poor soul's liver to a piece of rubber
hose."

This particular poem concludes with the following lines:

"Rather than forever sever
All secretions from my liver,
I'll die with my music in me and just take my bile
along."

B. Y. G.

GEMS AND THEIR CREATORS

Whatever distinction it may be, St Louis, in the person of Dr. Adam Hammer, contributed the first clinical description of coronary thrombosis. The clinical acumen of the gentleman who hoped to establish in St. Louis an American Heidelberg is best expressed in his own account of this extraordinary case which he saw in consultation. "I thought that only a sudden, progressively increasing disturbance in the nutrition of the heart itself such as cutting off of the supply of nourishment (by a thrombotic occlusion of at least one of the coronary arteries) could produce such changes as this case showed. . . . I mentioned my conviction to my colleague at the bedside. He, however, had a non-plused expression and burst out 'I have never heard of such a diagnosis in my whole life' and I answered 'Nor I also.'"

To the physician who would browse in the history of disease, inspect at first hand the remarkable originals upon which our science is founded and contemplate the mental stature of men whose only tools were the five senses and their own intuitive processes, the second edition of Dr. Ralph H. Major's "Classic Description of Disease" (Chas. C. Thomas, Springfield, Illinois) will prove a veritable treat. It contains 403 selections from the works of 190 authors, being somewhat enlarged over the earlier edition. One hundred and thirty-seven carefully chosen illustrations add flavor to the volume. This is a book to be picked up again and again, to be gleaned at intervals, not read through at a sitting.

One of the many surprises that it provided this reviewer was that the syndrome ordinarily labeled Fröhlich's syndrome does not correspond to the case just described by the German clinician. His patient presented all the findings of a hypophyseal tumor and the abnormal fat deposition was ascribed thereto. Another is that Corrigan's description of the pulse of aortic insufficiency nowhere mentions the water hammer quality of the pulse. No physician can fail to find similar fascinating tidbits from a perusal of this volume.

B. Y. G.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.
Perry County Medical Society, December 15, 1938.
Camden County Medical Society, December 23, 1938.
Ste. Genevieve County Medical Society, December 23, 1938.
Dent County Medical Society, January 25, 1939.
Stoddard County Medical Society, January 30, 1939.
Howard County Medical Society, February 15, 1939.
Macon County Medical Society, February 22, 1939.
Johnson County Medical Society, February 25, 1939.
Morgan County Medical Society, March 21, 1939.
Webster County Medical Society, March 28, 1939.
Holt County Medical Society, March 31, 1939.
Bates County Medical Society, April 1, 1939.
Lincoln County Medical Society, April 5, 1939.
Miller County Medical Society, April 5, 1939.
Moniteau County Medical Society, April 5, 1939.
Barry County Medical Society, April 6, 1939.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

MISSOURI STATE MEDICAL ASSOCIATION

Eighty-Second Annual Session

Excelsior Springs

April 10, 11, 12, 1939

MINUTES OF THE HOUSE OF DELEGATES

Ballroom, Elms Hotel

Monday, April 10, 1939

Morning Session

The first meeting of the House of Delegates of the Eighty-second Annual Session of the Missouri State Medical Association, held in the Ballroom of the Elms Hotel, Excelsior Springs, was called to order at 9:45 a. m., Monday, April 10, 1939, by Dr. Curtis H. Lohr, St. Louis, Chairman of the Council. Dr. Lohr introduced Dr. C. A. W. Zimmermann, Cape Girardeau, Vice

President, whom the Council had chosen in special session on April 9 to preside in the absence of the President, Dr. B. W. Hays, Jackson, who was unable to attend because of illness.

On motion of Dr. R. Emmet Kane, St. Louis, duly seconded, the Secretary was instructed to send a telegram of greeting from the assembly to Dr. Hays with best wishes for his speedy recovery.

The Committee on Credentials reported seventy-eight officers and Delegates present.

Officers, Councilors and Delegates who were present during the Annual Session follow:

Officers

President-Elect... James R. McVay, Kansas City
Vice President... C. A. W. Zimmermann,
Cape Girardeau

Assistant

Secretary..... E. H. Bartelsmeyer, St. Louis

Councilors

1st District..... A. S. Bristow, Princeton
2nd District..... H. B. Goodrich, Hannibal
3rd District..... Curtis H. Lohr, St. Louis
4th District..... R. B. Denny, Creve Coeur
5th District..... W. A. Bloom, Fayette
6th District..... A. J. Campbell, Sedalia
7th District..... E. P. Heller, Kansas City
8th District..... H. L. Kerr, Crane (Delegate)
9th District..... E. C. Bohrer, West Plains
10th District..... E. J. Nienstedt, Sikeston

Delegates

COUNTY	DELEGATE
Adair-Schuyler-	
Knox-Sullivan..	J. S. Gashwiler, Novinger
Adair-Schuyler-	
Knox-Sullivan..	P. V. Hart, Coatsville
Atchison.....	E. B. Settle, Rockport
Audrain.....	J. F. Harrison, Mexico
Barry.....	F. T. Kerr, Monett
Barton.....	T. F. Miller, Lamar
Bates.....	A. L. Hansen, Appleton City
Boone.....	W. J. Stewart, Columbia
Buchanan.....	L. P. Forgrave, St. Joseph
Buchanan.....	W. T. Elam, St. Joseph
Buchanan.....	W. R. Moore, St. Joseph
Caldwell-	
Livingston.....	E. A. Thompson, Breckenridge
Caldwell-	
Livingston.....	H. H. Grace, Chillicothe
Callaway.....	R. N. Crews, Fulton
Cass.....	D. S. Long, Harrisonville
Chariton.....	J. W. Hardy, Sumner
Clay.....	A. E. Spelman, Smithville
Clinton.....	I. D. Kimes, Cameron
Cole.....	H. B. Stauffer, Jefferson City
Cooper.....	A. H. Wells, Boonville
Dent.....	F. E. Butler, Salem
Greene.....	Paul F. Cole, Springfield
Greene.....	G. D. Callaway, Springfield
Grundy-	
Daviess.....	E. J. Mairs, Trenton
Grundy-	
Daviess.....	R. V. Thompson, Jamesport
Harrison.....	W. A. Broyles, Bethany
Henry.....	S. B. Hughes, Clinton
Holt.....	O. C. Gebhart, Oregon
Howard.....	W. B. Kitchen, Glasgow
Jackson.....	Morris B. Simpson, Kansas City
Jackson.....	Rexford L. Diveley, Kansas City
Jackson.....	Ira H. Lockwood, Kansas City
Jackson.....	John McLeod, Kansas City
Jackson.....	George H. Thiele, Kansas City
Jackson.....	Ralph R. Coffey, Kansas City

Jackson.....A. W. McAlester, Jr., Kansas City
Jackson.....Homer A. Beal, Kansas City
Jackson.....Ralph E. Duncan, Kansas City
Jackson.....Herbert L. Mantz, Kansas City
Jackson.....E. Lee Miller, Kansas City
Jackson.....Ralph R. Wilson, Kansas City
Jasper.....R. M. James, Joplin
Johnson.....W. R. Patterson, Warrensburg
Laclede.....P. A. Jenkins, Lebanon
Lafayette.....T. C. Ryland, Lexington
Lawrence-Stone..H. L. Kerr, Crane
Lawrence-Stone..L. M. Lyons, Pierce City
Lewis-Clark-

Scotland.....E. E. Parish, Memphis
Lincoln.....J. C. Creech, Troy
Linn.....G. B. Putman, Marceline
Marion-Ralls...W. F. Francka, Hannibal
Marion-Ralls...T. A. Roselle, Palmyra
Mercer.....C. J. Laws, Princeton
Miller.....W. L. Allee, Eldon
Morgan.....J. L. Washburn, Versailles
Newton.....O. A. Sale, Neosho
Nodaway.....B. F. Byland, Burlington Junction
Perry.....J. J. Bredall, Perryville
Pettis.....W. A. Beckemeyer, Sedalia
Phelps-Crawford..R. E. Breuer, Newburg
Phelps-Crawford..A. H. Horne, Steelville
Platte.....H. M. Clark, Platte City
Pulaski.....C. M. Mallette, Crocker
Randolph-Monroe.F. L. McCormick, Moberly
Randolph-Monroe.M. C. McMurry, Paris
Ray.....L. D. Greene, Richmond
St. Charles.....R. G. Cooper, St. Charles
St. Louis.....O. W. Koch, St. Louis
St. Louis.....J. D. Hayward, St. Louis
St. Louis.....O. P. Hampton, St. Louis
St. Louis.....E. R. Brown, University City
St. Louis City....Neil S. Moore, St. Louis
St. Louis City....Earl R. Rice, St. Louis
St. Louis City....Ross A. Woolsey, St. Louis
St. Louis City....Robert F. Hickey, St. Louis
St. Louis City....Robert Mueller, St. Louis
St. Louis City....W. T. Coughlin, St. Louis
St. Louis City....Jerome I. Simon, St. Louis
St. Louis City....E. Lee Dorsett, St. Louis
St. Louis City....Ralph Kinsella, St. Louis
St. Louis City....Marshall F. Seibel, St. Louis
St. Louis City....Philip S. Luedde, St. Louis
St. Louis City....R. Emmet Kane, St. Louis
St. Louis City....Victor E. Scherman, St. Louis
St. Louis City....Leo J. Hartnett, St. Louis
St. Louis City....Carl F. Vohs, St. Louis
St. Louis City....V. Visscher Wood, St. Louis
St. Louis City....Edwin C. Ernst, St. Louis
St. Louis City....William G. Becke, St. Louis
St. Louis City....Lee D. Cady, St. Louis
St. Louis City....C. H. Neilson, St. Louis
St. Louis City....Alphonse McMahon, St. Louis
Saline.....R. W. Kennedy, Marshall
South Central—

Howell.....A. H. Thornburgh, West Plains
Vernon-Cedar...J. W. Dawson, Eldorado Springs
Vernon-Cedar...R. B. Wray, Nevada

On motion of Dr. Curtis H. Lohr, St. Louis, the reading of the minutes of the previous meeting was dispensed with and adopted as printed in *THE JOURNAL*.

The Secretary read the message and recommendations of the President as follows:

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

All through the years of our Association our officers have asked for the loyalty and interest of the members, each officer feeling that at that particular time it was

especially needed. While a plea for cooperation of all members is not new, I believe our need has increased sufficiently to urge that we heed such a request now. I believe that we already have a more cohesive organization than we have ever had. Our problems of the profession as a whole have made us minimize our community and group problems, and possibly animosities, and it is increasingly evident that all members are working toward the best things for all. This is certainly well and I hope that this same spirit will prevail in this Session and that much good will be accomplished.

Each of you is representing his component society and has much to offer to this meeting, as there is much to gain from other representatives.

A pamphlet containing the reports of the Council and the various committees is in your hands. These reports will be referred to the proper reference committees for study and recommendation. These reports represent much thought and hard work during the last year. If you are interested in any report may I suggest that you appear before the reference committee to which it is referred and give them the benefit of your counsel and advice.

Two committees were authorized by the Council late in the year, the Committee on Tuberculosis and the Committee on Industrial Health. I have not made these appointments, leaving that for the incoming President who will work with them during this year.

Several of our committees are making recommendations to you that are worthy of your close consideration and I know they will receive this. I call your attention in particular to the report of the Committee on Medical Economics. It is an excellent suggestion that the reference committee to which this report is referred by the House should hold a special hearing on the subject matter of this report. This hearing should be an executive session and it could perhaps be held immediately following the Maternal Welfare Dinner. The final consideration of the report of the Committee on Medical Economics and the recommendation of the reference committee has been made a special order of business for consideration at the session on Wednesday thus permitting ample time for thought and consideration of the context of the report before final action is taken by this House.

I have no other recommendations to make, rather commendations for the work and accomplishments of the year and the spirit of interest and cooperation which promises accomplishments to come. I should like to pay special tribute to the fine spirit of cooperation of the county societies, the Council and the headquarters staff.

In closing, permit me to express my thanks and sincere appreciation for the many acts of kindness shown me during my term. I have been ill to a degree that unfitted me for many of the duties. Needless to say I have been deeply conscious of my failure to carry on the work as have my predecessors. For this I beg your indulgence and ask you to forgive me.

Personally, the most disheartening thing is my inability to be present at this Annual Meeting in Excelsior Springs. My fondest hope is that the convention may be characterized by its loyalty, harmony and good sportsmanship. From this convention are leading strings reaching into every component society and councilor district in the state which may carry, I hope, a militant voice of love and zeal for the eternal triumph of organized medicine.

On motion, duly seconded, the message was referred to the Council.

The following reference committees were appointed:

Reference Committee on Amendments to Constitution and By-Laws

A. H. Thornburgh, West Plains, Chairman.
E. L. Spence, Kennett.
O. P. Hampton, St. Louis.

Reference Committee on Resolutions

Ralph R. Wilson, Kansas City, Chairman.
J. S. Gashwiler, Novinger.
R. G. Cooper, St. Charles.

Reference Committee on Miscellaneous Affairs

R. M. James, Joplin, Chairman.
Paul F. Cole, Springfield.
W. B. Kitchen, Glasgow.

Reference Committee on Medical Education and Public Welfare

Joseph C. Peden, St. Louis, Chairman.
George H. Thiele, Kansas City.
Frank Mays, Washington.

Dr. A. S. Bristow, Princeton, Chairman of the General Committee on Arrangements, reported as follows:

REPORT OF THE GENERAL COMMITTEE ON ARRANGEMENTS

The work of the General Committee on Arrangements was very light this year. We had 100 per cent cooperation from the members of the Clay County Medical Society and I wish to thank them for this. We are glad you are here and hope you will enjoy the meeting.

On motion, duly seconded, this report was adopted.

Dr. David E. Musgrave, Excelsior Springs, Chairman of the Local Committee on Arrangements, reported as follows:

REPORT OF THE LOCAL COMMITTEE ON ARRANGEMENTS

On behalf of the Clay County Medical Society, it is my privilege to welcome you to our community. Our members may be found and identified by our host badges. I have been instructed to communicate to you that we, the host group, stand ready to be of service to you in any manner in which we are able. Briefly stated, we are at your service.

It is sincerely hoped that your living accommodations are satisfactory. The committee on hotels reports that all reservations have been filled for almost two weeks. The entertainment committee arranged a golf tournament and musicale at the Hall of Waters for yesterday, and have helped in arranging the President's Ball for Tuesday night in the dining room of the Elms Hotel following the Bring-Your-Husband Dinner. I hope that you will all be able to attend.

The committee on entertainment has also arranged conducted tours of our beautiful Hall of Waters available at your convenience. I am frank in saying to you that when you were invited to Excelsior Springs it was with a selfish motive in that we desired to extend to the medical profession of Missouri the opportunity of examining our facilities for the proper conduct of spa therapy. We invite your critical examination of the spa therapy plant at our Hall of Waters.

I have here a brief pertinent message for you from the Excelsior Springs unit of the Clay County Medical Society.

Honorable President and Delegates of the Missouri State Session:

Your attention is respectfully called to the improved facilities to be found here for the scientific use of spa therapy. Excelsior Springs has acquired all of its principal mineral waters and they are now housed in our beautiful Hall of Waters at the cost of three quarters of a million dollars. We hope that you will avail yourselves of the opportunity of seeing it.

In this building is operated a completely modern hydrotherapy department for men and women, manned by experienced operators whose ambition it is to serve

the public efficiently, and to do so under the supervision of men trained in spa therapy.

The mineral waters are all dispensed there in a manner acceptable to the most exacting in hygienic discipline. Dr. Parker, professor of chemistry at Parkville College, supervises the analysis of our waters and attests to their purity.

In a few days our warm pool for the treatment of infantile paralysis and arthritis will be completed. The large mineral water pool maintained at 84 degrees for winter swimming and exercises has been in operation for more than a year.

We crave your indulgence for a moment to say that in Clay County we have the second oldest medical society in Missouri; that its members are imbued with the same high ideals and purposes in practice which characterize the overwhelming majority of the members of the State Association. If for any reason you are inclined to disapprove of our city because of your belief that quackery is extant in our midst, we desire that you pause to reflect on the cause for the success of quackery in any resort. Plainly speaking, the quack thrives on the gullibility of the uninformed public. If you, who might be favorably disposed to spa therapy for your chronic invalid who needs a change of scenery, would take the pains to direct him to members of organized medicine or to the Chamber of Commerce here for advice immediately upon his arrival, you would find that your own best interests would be conserved and your patient would not be introduced to the embarrassments incident to unethical practice. We do not deny the presence of quackery in Excelsior Springs. We do assert, however, that we, as a profession do not condone it, abet it or tolerate it. So long as our Medical Practice Act of Missouri has no more teeth in it than it now has, we, like you in other cities, can do nothing more than take our punishment.

Lastly, we believe that spa therapy has its place in the treatment of the chronic invalid; that it serves a useful purpose and that Excelsior Springs is thoroughly alive to its responsibilities.

On motion, duly seconded, this report was adopted.

The report of the Secretary follows:

SECRETARY'S REPORT

The Association office has cooperated with and carried out the instructions of the officers of the Association during the year and much of its work will be represented by the reports of the various committee chairmen, the officers and the Council.

Cooperation with the State Board of Health has been continued this year through the Committee on Maternal Welfare and much assistance has been given in maintaining the schedules of the lectures on obstetrics and pediatrics to the profession and the laity.

The Assistant Secretary has given much of his time since the Legislature convened to carrying out the instructions and acting for the Committee on Public Policy.

Assistance to young physicians desiring locations and to physicians in practice who wished to change location has been continued.

Effort was made by the headquarters staff to keep the county medical societies fully informed on the activities of the Association by the issuance of Bulletins from time to time as well as through the columns of THE JOURNAL.

The emphasis laid upon special subjects as "Topic of the Month" in THE JOURNAL since December, 1938, has been favorably received by the membership.

Our President was called upon to appoint members to various committees during the year. Dr. James E. Stowers, Kansas City, was made chairman of the Committee on Scientific Work and Dr. F. E. Walton, St. Louis, was appointed a member. A Public Policy Com-

mittee composed of Dr. Morris B. Simpson, Kansas City, Chairman; Dr. James Stewart, Jefferson City, and Dr. R. Emmet Kane, St. Louis, was appointed. Dr. Ira H. Lockwood, Kansas City, was appointed to the Committee on Medical Economics.

The Nominating Committee must submit nominations for the following offices:

Three Vice Presidents to fill the vacancies created by the expiration of the terms of Drs. C. A. W. Zimmermann, Cape Girardeau; Dr. D. C. McCraw, Bolivar, and Dr. L. H. Fuson, St. Joseph.

The terms of two Delegates to the American Medical Association expire this year, Dr. Carl F. Vohs, St. Louis, and Dr. James R. McVay, Kansas City.

The Committee on Scientific Work is to be congratulated on the excellent program it has arranged for the members and the Clay County Medical Society on its splendid assistance in the preparation for the Excelsior Springs Session.

Honor members eligible for Affiliate Fellowship in the American Medical Association will be reported to the Council for recommendation to the House of Delegates.

In 1938 there was a gain of thirty-five members. In 1937 there was a gain of thirty-eight and in 1936 a gain of sixty-two.

STATUS OF MEMBERSHIP

Number of members, January 1, 1938.....	3255
New members	165
Reinstated	22
Total	3442
Dropped	54
Deceased	73
Transferred	25
Total, January 1, 1939.....	3290

Of this total 231 are Honor members.

E. H. BARTELSMEYER.

On motion, duly seconded, this report was referred to the Council.

The report of the Treasurer follows:

REPORT OF THE TREASURER

The financial status of the Association as of December 31, 1938, was published in detail in the April 1939 issue of THE JOURNAL. I have brought down the figures of receipts and expenditures since the first of January 1939 to and including March 31, 1939. These figures show the sums in the various funds as follows:

General Fund

RECEIPTS

Balance, Dec. 31, 1938	\$ 1,248.38
Membership dues collected	13,584.00
Annual Session exhibit space	320.00
Office space—subtenant ..	135.00
Subscriptions — nonmembers	6.40
JOURNAL advertising space	1,802.84
Expense refunds	23.46
Total	\$17,120.08

DISBURSEMENTS

Vouchers paid	\$ 7,519.20
Transferred to Legislative Fund	1,745.00
Total	\$ 9,264.20
Balance, March 31, 1939 ..	\$7,855.88

Legislative Fund

RECEIPTS

Balance, Dec. 31, 1938	\$ 2,761.63
Transferred from General Fund	1,745.00
Total	\$ 4,506.63

DISBURSEMENTS

Vouchers paid	\$ 520.01	520.01
Balance, March 31, 1939 ..		\$3,986.62

Defense Fund

Balance, Dec. 31, 1938	\$ 1,220.76
Balance, March 31, 1939 ..	\$1,220.76

Sinking Fund

Balance, Dec. 31, 1938	\$ 4,269.00
Balance, March 31, 1939 ..	\$4,269.00

These figures show that there was a balance of \$9,499.77 on hand January 1, 1939, and receipts from membership dues, advertising and other sources of income amounted to \$15,871.70. During the period January 1 to March 31, 1939, there was disbursed by vouchers, properly endorsed and signed by the officers, \$8,039.21. This leaves the financial status at March 31, 1939, as follows:

General Fund	\$ 7,855.88
Legislative Fund	3,986.62
Defense Fund	1,220.76
Sinking Fund	4,269.00
Total	\$17,332.26

On motion, duly seconded, the report of the Treasurer was referred to the Council.

The report of the Committee on Scientific Work, Dr. James E. Stowers, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work is happy to present at this meeting a program of which each member should feel justly proud. We anticipate that the meeting will be of such great interest that the registration will be far in excess of any previous meeting.

To stimulate more interest and better attendance, the Council allowed us to invite eight distinguished guest speakers for this meeting. We have endeavored to select men of national reputations who could speak upon subjects in a manner which would be of interest to the membership at large.

The following speakers have accepted invitations to address us: Dr. I. Mims Gage, New Orleans; Dr. Warren H. Cole, Chicago; Dr. Sumner L. Koch, Chicago; Dr. Fred M. Smith, Iowa City, Iowa; Dr. B. R. Kirklin, Rochester, Minnesota; Dr. William Malamud, Iowa City, Iowa; Dr. A. W. Adson, Rochester, Minnesota; Dr. Walter M. Whitaker, Quincy, Illinois.

We urge your attendance at all of the scientific sessions.

JAMES E. STOWERS, Chairman,
F. E. WALTON,
RALPH A. KINSELLA.

On motion, duly seconded, the report was adopted.

The report of the Committee on Postgraduate Course, Dr. C. H. Neilson, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON POSTGRADUATE COURSE

At the Annual Session last year, the Committee on Postgraduate Course suggested to the House of Delegates that a correlation between the various committees of the Association should be made. This suggestion was made because the different committees, working in their own way without reference to the other committees, often overlapped and as a consequence the instruction was more or less haphazard.

The Delegates approved this suggestion and this plan has been in operation since December 1938. The purpose of this Committee is, as its name implies, to correlate and integrate all the postgraduate instruction carried out by the different committees.

At a meeting held at the Melbourne Hotel in October 1938 the chairmen of all committees were present and a discussion which was fruitful and enthusiastic was held. At this meeting a plan of postgraduate instruction was worked out. It was decided that the different committees would work together and also separately.

The separate work was planned so that each committee should have charge of its programs and publish papers on topics connected with their special work. These programs were to be known as "The Topic of the Month."

The chairmen of the various committees worked with the Committee on Publication on the issues of THE JOURNAL and helped that Committee put the material in proper shape for publication. At the same time, the component societies were urged to devote one meeting a month to the topic of the month. The response while not overwhelming has been gratifying. Not only have requests for speakers designated in many instances a speaker on the subject dealt with that month in THE JOURNAL, but the county societies have had round table discussions on these subjects by their members.

We feel that the general profession has accepted this plan of postgraduate instruction and would like to suggest its continuation for the next year. More counties requested speakers and more designated selected topics, and the indications are that more systematic postgraduate study has been done in the societies than in former years. The Committee on Postgraduate Course sent eighty-seven speakers to seventy-six meetings of thirty-two counties during the last year.

The Chairman of the Postgraduate Correlating Committee wishes to thank each chairman and the members of each committee for their enthusiastic and definite work. He also wishes to thank the Councilors for their interest and suggestions in carrying out this work. We feel that the Councilors have been greatly interested in this work and that it is along the lines which they have in mind for their Association. In addition, the Chairman wishes to thank Mr. Bartelsmeyer for his intelligent, enthusiastic and cooperative spirit in working out this plan of postgraduate instruction.

C. H. NEILSON, Chairman,
M. PINSON NEAL,
REXFORD L. DIVELEY.

Dr. Neilson, Chairman, reporting further, said: The work of the Committee on Postgraduate Course has been published. A Postgraduate Correlating Committee was created and I was elected Chairman. I think most of the work that has been done this year has been satisfactory. I suppose you know the type of papers that have been published each month. We feel we have accomplished a little more this year than ever before and in view of the success of this venture I suggest that it be continued on about the same plan for another year. We cannot tell whether we have reached everybody as well as we should or whether the component societies have followed the suggestions that they have meetings and round table discussions each month on the problems that have been emphasized but we know consid-

erable work has been done along this line, particularly in the larger centers. In view of the immense amount of work that is being done in various cities on postgraduate work and as the American Medical Association has taken up the question of postgraduate work for practitioners, I think it behooves us to keep in the limelight, as we are at present, and follow out a plan similar to the one we have had this year.

On motion, duly seconded, this report was adopted.

The report of the Committee on Publication, Dr. Walter Baumgarten, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON PUBLICATION

January 1, 1938, to January 1, 1939

The 35th volume of THE JOURNAL was completed with the December issue. During 1938 there were published in THE JOURNAL ninety-four original articles, one special article, forty-eight editorials, one hundred fifty-four news items, fifty-seven obituaries, one hundred twenty-two society proceedings and seven Councilor's reports, ten Woman's Auxiliary reports, twenty-seven miscellaneous articles, one correspondence, seventy book reviews, twenty commercial announcements, seventeen organization activity articles and three articles from the State Board of Health. There were 512 pages of reading material and 364 advertising pages. There were ninety-eight books received for review in THE JOURNAL and were distributed to medical libraries in the state.

Advertising in THE JOURNAL from January 1, 1938, to January 1, 1939, earned \$8034.60, with \$1699.35 to be collected, totalling \$9733.95. Subscriptions of nonmembers amounted to \$46.85, making \$9780.80 actually earned by THE JOURNAL. The cost of production of THE JOURNAL (printing and illustrations) was \$6865.44.

WALTER BAUMGARTEN, Chairman,
BUFORD G. HAMILTON,
M. H. SHELBY.

The report was referred to the Council.

REPORT OF COMMITTEE ON PUBLIC POLICY

Dr. Morris B. Simpson, Kansas City, Chairman, reported on the status of various bills in the General Assembly of Missouri.

On motion duly seconded, the report was adopted.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the Association went on record as opposed to Senate Bill No. 348.

The report of the Committee on Defense, Dr. C. E. Hyndman, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON DEFENSE

April 15, 1938, to March 15, 1939

Status of Cases

Cases pending April 15, 1938	10
Threats pending April 15, 1938	1
New cases (April 15, 1938, to March 15, 1939)	5
New threats (April 15, 1938, to March 15, 1939)	0
Cases settled (April 15, 1938, to March 15, 1939)	3
Threats dropped (April 15, 1938 to March 15, 1939) 0	
Cases pending March 15, 1939	12
Threats pending March 15, 1939	1
Financial assistance rendered	\$200

Of the three cases settled during the year one was settled for a small cost on a nuisance basis; one was settled for \$100 to cover costs, and one was settled by compromise.

C. E. HYNDMAN, Chairman,
O. B. ZEINERT,
M. L. KLINEFELTER.

The report was referred to the Council.

The report of the Committee on Medical Education and Hospitals, Dr. L. W. Dean, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

The Committee on Medical Education and Hospitals held one meeting during the year. The Clay County Medical Society proposed to the Council on August 31 the establishment of an arthritic hospital at Excelsior Springs. The matter was referred to the Committee on Medical Education and Hospitals and consideration was given the proposed establishment of the hospital at a meeting of the Committee on October 24. The Committee made its report to the Council at its meeting on December 11 and is incorporated in the report of the Council. (See page 304.)

L. W. DEAN, Chairman,
H. W. CARLE,
ROSS A. WOOLSEY.

On motion, duly seconded, the report was adopted.

The report of the Committee on Cancer, Dr. Dudley A. Robnett, Columbia, Chairman, follows:

REPORT OF THE COMMITTEE ON CANCER

This year has witnessed a definite change in the position of the Committee on Cancer of the Missouri State Medical Association. In the past the Chairman of this Committee was also the chairman of the Missouri State Cancer Commission and chairman of the Missouri Committee for the American Society for the Control of Cancer. Now each of these organizations has its own chairman. Your Committee has cooperated with each of these organizations during the last year.

For the last five years your Committee has carried on an intensive cancer education program. Each year was devoted to some definite cancer problem and every effort was made to have the county societies stress this subject in their meetings during the year. The first year and to a lesser extent the second year, the program was enthusiastically received and scientific meetings along with lay meetings were held throughout the state. In the last three years, particularly the last year, there was a decided lack of interest in this program reaching almost the point of apathy. For this reason your Committee felt that it was unwise to press this type of cancer program and it welcomed the new plan of the State Association with the correlation of all educational activities under the Postgraduate Correlating Committee. We have cooperated with this Committee and with your Secretary in planning the April issue of *THE JOURNAL* which is devoted to cancer.

Lay education has gone forward under the direction of the Missouri Society for the Control of Cancer and its Field Army. We are fortunate in this state that this organization is in complete accord with us and that our Association is well represented on the Executive Committee of that organization. We urge that our Association give its support to the activities of the Field Army.

In December your Committee requested an opportunity to meet with the State Cancer Commission and discuss the problems of the new Cancer Hospital. This request was granted and on January 22, 1939, the full Committee met with the Commission in St. Louis. The relationship of the Missouri State Medical Association and the Missouri State Cancer Commission and hospital was discussed. Your Committee expressed its opinion that the purposes of the hospital were threefold: (1) the treatment and care of indigent cancer patients; (2) the education of the physicians of the State of Missouri in regard to cancer, and (3) research and investigation.

We felt the first was most important and urged the

selection of a full-time competent staff, made up when possible of physicians and surgeons of our own state. The second purpose, postgraduate education, was stressed and we asked that a definite program be included. We called attention to the fact that the State Association had endorsed a postgraduate course in cancer. Research and investigation, while of great importance and necessary, should not in this institution overshadow the previous mentioned purposes.

The Commission was most considerate and assured your Committee of its desire to cooperate.

The Chairman of your Committee has recently written to the secretary of each county society urging cooperation with the Women's Field Army; cooperation with this Committee and the Postgraduate Committee in planning cancer programs; asking the appointment of a cancer committee in each society to supervise cancer problems in respective counties and to cooperate with the Missouri State Cancer Commission and the local county court in the selection and verification of indigent cancer patients to the State Cancer Hospitals in Fulton and St. Joseph which are now in operation under the Cancer Commission.

DUDLEY A. ROBNETT, Chairman,
EARL C. PADGETT,
WILLIAM E. LEIGHTON.

Dr. Robnett, Chairman, reporting further, said: I want to emphasize the importance of the cancer program and our problem at the present time. We have two hospitals for the indigent operating under the Cancer Commission, one at Fulton and one at St. Joseph, and by the end of the year the hospital at Columbia should be in full operation. We have published in *THE JOURNAL* this month facts regarding patients and their admission. It is up to the county medical societies to see that physicians have full control of the admission of these patients. Each county should be responsible for the admission of every patient and through cooperation of the county medical society, the Committee on Cancer and the county courts this problem can be worked out. But if we allow it to be handled entirely by the county court or by other agencies in the county I am afraid it will be hard to handle it later. I urge the cooperation of the county medical societies in starting this work in the right way.

On motion, duly seconded, the report was adopted.

The report of the Committee on Medical Economics, Dr. Carl F. Vohs, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

The Missouri Plan for medical, dental and hospital care for all the people has now been in operation for about three years. The complete plan calls for the establishment of economic units throughout the state. Each unit will support (1) a Group Hospital Service plan, (2) a Medical-Dental Service Bureau, and (3) a Central Registration Bureau. Representatives from the boards of management of each of these bureaus will make up the Health Security Administration of the Economic Unit. Representatives from each Health Security Administration will comprise a state board to be known as the Health Security Administration of the State of Missouri. It is suggested that this Health Security Administration of the State of Missouri will be in control of all plans and monies prorated by state and federal grants-in-aid. Its functions will be to assist local economic units in the building of needed hospitals and clinics.

Group hospitalization, the first division of an economic unit, now operating on a state-wide basis, has shown very gratifying results. One hundred thousand people have been enrolled, an average of 150 a day.

We are hospitalizing 150 people a day at this time and have hospitalized more than 6000 people in all. The hospitals have been paid approximately \$305,000 for services rendered our members. Recent study shows that a majority of our members are in the low income bracket; 57.3 per cent earn less than \$25 weekly; 42.1 per cent earn between \$25 and \$45 weekly, and only 1.6 per cent earn in excess of \$45 weekly.

Additional benefits have been extended four times, the most recent being an increase in hospital days care from twenty-one to thirty days coverage for each member of the family annually. The employees of approximately 1600 firms have voluntarily enrolled; enrollment in these firms vary from 30 to 100 per cent of those eligible. The average stay of our members in the hospitals has been 8.5 days which is about two and a half days less than the average national figure.

On January 1, 1938, the total operating expense was 27 per cent of income; with the establishment of the family plan enrollment increased 206 per cent during the last year causing the operating expense to drop to 17.9 per cent. Breaking down this 17.9 per cent, 10.7 is used for administration and the balance for enrollment of new members. The financial status of the organization is excellent. There is more than \$175,000 in assets and an excess of \$100,000 of income over expenses.

The Medical-Dental Service Bureau as it is operating in St. Louis has budgeted bills up to February 1, 1939, for 2,354 people to the amount of \$210,564, the average amount for each case being \$89.44. There has been paid to the professions from October 23, 1935, to February 1, 1939, \$106,054. This amount represents 18,605 separate budgeted payments averaging \$6.39 for each payment. This is indisputable evidence that this bureau is performing the sociological job it was intended to do, i. e., bringing good medical, dental and hospital care within reach of the low income group. The Medical-Dental Service Bureau in St. Louis is also operating a professional telephone exchange for the societies. Two hundred physicians have availed themselves of this opportunity which is furnished approximately at cost, \$3.25 per month exclusive of the telephone directory listings.

The St. Louis Dental Society has inaugurated a new plan administered by the Medical-Dental Service Bureau known as the Missouri Dental Plan. Through this program persons in the low income bracket may obtain dental service for an amount they can afford to pay and budget for it according to their ability.

The Central Registration Bureau for the medically indigent has not been fully established in any community but more progress has been made in the last year than at any previous time. Your Committee feels that this third basic unit of the coordinated plan is an inevitable need and cannot be dispensed with in any approach to the problem of serving the less fortunate and underprivileged in the State of Missouri. The extension of medical care for clients in the Resettlement Administration is part of the program of the Central Registration Bureau. To date thirteen counties have entered the plan, Camden, Cass, Cole, Cooper, Lawrence, Miller, Mercer, New Madrid, Pettis, St. Charles, Stone, Worth and Montgomery. In these counties there are 229 physicians and of these 155, or 68.5 per cent, are cooperating in the program. There are 1811 standard clients in these counties and 518 or 28.5 per cent have availed themselves of this service. The money placed in the hands of trustees in each of these counties has amounted to \$14,718.00, an average of \$28.41 per family. There have been 463 office calls and 171 house calls made. One hundred sixty-one families and 217 individuals, or 31 per cent of the individuals enrolled, have availed themselves of the medical care offered. The trustees have paid \$1,363.00 or \$8.46 per family to the profession for this service. The plan has been in operation for less than a year in most of these counties and up to the present time the Committee has had no

complaints. This experience in these counties is of great value in developing a group medical service plan in the State of Missouri.

The Committee on Medical Economics has met with numerous committees from various county medical societies to develop a state-wide Group Medical Service. Space does not permit a detailed presentation of the plan at this time but it will be presented at the Excelsior Springs Session to the Council, officers and delegates at the Wednesday afternoon session of the House of Delegates on April 12. On Monday evening, April 10, at 8:30 p. m., there will be a discussion of the plan in executive session.

The Committee on Medical Economics has assisted in the development of the current legislative program. It was not deemed advisable to push the entire legislative program that your Committee has advocated in the last few years.

In summary the Committee presents the economic program for 1939:

1. Develop the Missouri Plan for the Medical, Dental and Hospital Care of all the people in logical sequence.
2. The establishment of a Group Medical Service Plan as part of the Missouri Plan in all counties where it has been fully approved by the county medical society.
3. Coordinate in the state all the provisions of the National Health Program as they may be adopted by Congress in the Wagner or other bills through the completion of the Missouri Health Security Administration.
4. Introduce (or reintroduce in the case of bills not approved at the present session) into the state legislature the following bills:
 - a. Revised Workmen's Compensation Act.
 - b. Medical Lien Bill.
 - c. Basic Science Bill.
 - d. Registration Bill.

The Committee recognizes the element of time that is necessary to develop this program in its entirety and bespeaks the indulgent patience of all members in the leadership of the Association. The time has now come when we must express full confidence in our chosen leadership or accept domination of elements detrimental to the high standards of medicine that we have set.

CARL F. VOHS, Chairman,
E. L. JOHNSTON,
IRA H. LOCKWOOD.

After discussion by Drs. W. T. Elam, St. Joseph; L. M. Lyons, Pierce City; Joseph C. Peden, St. Louis; A. W. McAlester, Kansas City; Philip S. Luedde, St. Louis; P. V. Hart, Coatesville, and Carl F. Vohs, St. Louis, Dr. R. Emmet Kane, St. Louis, moved that as a special order of business the Association go into executive session as a committee of the whole, Monday evening, April 10. The motion was seconded and carried.

The report of the Committee on Mental Health, Dr. G. Wilse Robinson, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON MENTAL HEALTH

The Committee on Mental Health has had no formal meeting during the year. The various members have been active in talking to medical, educational and lay groups on the subject of "Mental Health." Many county and district medical societies have manifested interest in the subject by asking members of the Committee on Mental Health to appear before them and discuss various phases of the subject.

We have emphasized the social and economic importance of the subject. We have stressed the fact that mental ill health can be prevented by the cooperation of the physician, teacher and parent of so-called prob-

lem children, the atypical child, the asocial child, the child in whom there is disharmony between the intellect and the emotions. All of these children are potentially psychotic, and should be taught thoroughly a safe philosophy of living and be trained to adjust themselves properly to the real problems of life.

We have also stressed the fact that insane persons can be restored to their previous normal state of mental health and that treatment should be instituted early after the onset of the psychosis, the prognosis being much better and the period of treatment shorter if treatment is instituted early after the onset.

We have arranged for the publication of various papers on the subject of mental health for the May issue of *THE JOURNAL*, the topic of the month of May being "Mental Health."

G. WILSE ROBINSON, Chairman,
ORR MULLINAX,
RALF HANKS,
F. A. CARMICHAEL,
E. F. HOCTOR.

On motion, duly seconded, the report was adopted.

The report of the Committee on Maternal Welfare, Dr. Ralph R. Wilson, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON MATERNAL WELFARE

In making this annual report the Committee wishes to adhere to the precedent of dividing its activities into three parts as outlined in its report at the Annual Session of 1937. The division of function of its activity falls into three main groups:

- A. Relationship to the medical profession itself.
- B. Relationship to the State Board of Health.
- C. Relationship to the public at large.

A degree of incompleteness and some sense of a lack of finality may be apparent in this report because the Committee's fiscal year ends several weeks after the Annual Session of the Association. By legislative enactment the State Board of Health begins its fiscal year for the Missouri Plan for Maternal Welfare on July 1, by which time it has received releases from federal funds to this end.

A. Relationship to the Medical Profession Itself.

Dr. O. F. Bradford and Dr. Paul Fletcher have continued in the capacity of field workers in the specialties of pediatrics and obstetrics respectively. This year's plan has been an attempt to work out, simultaneously, elective "refresher courses" for the profession and educational programs for selected groups of lay audiences. Approximately forty "refresher course" lectures have been given to date with an approximate average attendance of fifteen physicians. The Committee senses the following factors in this average attendance, which should have been larger, as follows:

1. Members of the Association do not follow announcements and editorials in *THE JOURNAL* as closely as they should.
2. An inevitable awkwardness is apparent in attempting to coordinate county unit plans of the State Board of Health and hyphenated county medical organizations.
3. To some extent, a lack of interest in the "refresher courses" is due to a misunderstanding of their true nature and sponsorship.
4. Physician's interest waned in this program, as has been the experience of other committees, at the time when a concurrent but not conjoined schedule for lay education was adopted.
5. The physician's mind of late months has been so embroiled in problems of economic nature that interest in scientific postgraduate work is at a low ebb.
6. The lectures on the schedule were presented by the full time field workers without assistance of accessory speakers as carried out the previous year.

The annual Maternal Welfare dinner will be held on Monday evening, April 10, at the Elms Hotel. Dr. J. C. Litzenberg, Minneapolis, Professor of Obstetrics and Gynecology at the University of Minnesota Medical School and Graduate School, will be the guest of honor and will offer a critique of interesting cases presented by practitioners of the state.

Dr. Litzenberg will give a formal presentation before the general assembly under the title, "The Conduct of Normal Labor and Its Abuses."

The Committee's annual prize for the best article on obstetrical or newborn infant problems appearing in *THE JOURNAL* during the last year will be awarded at the Maternal Welfare dinner.

The Committee, through its editor member, Dr. E. Lee Dorsett, sponsored the March issue of *THE JOURNAL* which had "Maternal Welfare" as the topic of the month. Also, Dr. Dorsett has conducted intermittently the Query Column in *THE JOURNAL* during the year as questions came in. Incidentally, this is a good free consultation service of which many physicians are not aware.

The Committee hopes to have an exhibit at the annual meeting in Excelsior Springs.

The Committee is attempting to work in full cooperation with the American Committee on Maternal Welfare, Inc., and its entire membership has been appointed as the Missouri Committee for applications to the American Congress of Obstetrics and Gynecology to be held in Cleveland, Ohio, September 11 to 15, 1939. Dr. Buford G. Hamilton, Kansas City, has been appointed national secretary for membership to this Congress.

One meeting, aside from those during each Annual Session, was held during the year in Columbia, on December 9, 1938. Instead of frequent meetings the Committee has been able to conserve time and expense by the "telephone conference" method.

Dr. Buford G. Hamilton and Dr. Ralph R. Wilson represented the American Maternal Welfare, Inc., at the annual meeting of the American Public Health Association in Kansas City, October 26, 1938, for explicit attendance at the section meetings of Registrars and Health Directors. Dr. Richard Dunn, Director of the Bureau of Census, gave favorable comments on the present Missouri birth certificates. Dr. Dunn has since indicated he would set aside sufficient federal funds to provide for a special stillbirth certificate which will be available January 1, 1940.

The Committee has made special efforts to cooperate, both by attendance at their meetings and otherwise, with the following organizations: (1) Council of the Missouri State Medical Association, (2) Advisory Committee of the Division of Child Hygiene of the State Board of Health, (3) Committee on Survey of Medical and Hospital Facilities in Missouri, (4) Postgraduate Correlating Committee, (5) Committee for the Study of the Control of Syphilis, and (6) State Social Security Commission of Missouri.

RECOMMENDATIONS

The Committee recommends that the Association adopt a resolution on so-called Minimum of Standards for Obstetrical Care in Missouri hospitals as follows:

- a. Gloves must be worn for all examinations and deliveries; hands must be scrubbed for five minutes before putting on surgical gloves.
- b. The number of vaginal and rectal examinations should be limited. Total number of examinations should be recorded when made and placed on the chart.
- c. The physician must be present if and when pituitrin is given, except in postpartum emergency. If given antepartum, the dose must not exceed 3 minims. The patient must be on the table ready to deliver. Reasons for giving pituitrin must be recorded.

d. All attendants must wear surgical masks during examinations and deliveries.

e. Patients with undiagnosed and puerperal infections are to be transferred from maternity departments.

f. No douches or intravaginal treatments should be given in the maternity section.

g. All normal babies are to be put on the regular feeding routine.

h. All circumcisions must be done with strict asepsis.

i. Consultations with a competent consultant is required in all of the following conditions:

1. Prolonged labors.

2. Cesarean sections.

3. Breech presentations, unless premature.

4. Versions and forceps except outlet applications.

5. Miscellaneous conditions such as placenta praevia and severe toxemia.

j. Adequate records are to be kept and properly filed.

The Committee recommends that its name be made to read "The Committee on Maternal Welfare and Infant Care" in order to save confusion with various other "child organizations" having a similar name. This change in title is endorsed by the Children's Bureau.

The Committee recommends that after the Eighty-third Annual Session, one member shall be a pediatrician recognized either by certification of the American Board of Pediatrics or whose last three years of major practice have been in the field of pediatrics. It is felt this inclusion in membership will lead to closer cooperation between the obstetrical and pediatric groups than by having the pediatric group represented on an advisory committee only.

The Committee recommends that the campaign for premarital and prenatal Wassermann tests be continued by the Association.

The Committee again recommends that each component society devote during the next year one full regular program to matters pertaining to problems in obstetrics or early childhood.

B. Relationship to the State Board of Health.

The Committee wishes again to point out that the State Board of Health, as a recognized health agency, could have developed a Missouri Plan for Maternal Welfare and administered it with little consideration from the Missouri State Medical Association. Each year that the present program has been carried out there has continued to be an improved relationship with the State Board of Health, which in turn has cooperated most satisfactorily with the Committee's suggestions. Details for continuing the state's program after July 1, 1939, are incompletely worked out and, therefore, cannot be included in this report. Lay education, however, will continue to be a prominent feature by necessity of the nature of federal requirements.

The Bureau of Vital Statistics has provided a report each month on the maternal death rate for the Committee's use.

The Division of Child Hygiene is furnishing, on request, literature and a series of letters concerning the value of prenatal and postnatal care. This series emphasizes the importance of a physician's care and in no wise conflicts with his technical advice. The contents of these communications have been approved by your Committee.

The series of "refresher course" lectures of last year, given by Dr. Bradford and Dr. Fletcher, have been bound for requested distribution to physicians.

RECOMMENDATIONS

The Committee recommends cooperation with the State Board of Health in a spirit equal to that of the last few years.

C. Relationship to the Public at Large.

With the cooperation of the Extension Bureau of the Department of Agriculture and Home Economics of the University of Missouri, rural women's clubs have participated in an educational program presented by Dr. Paul Fletcher and Dr. O. F. Bradford. Beyond doubt, lay people are clamoring for education in medical fields. This was the substance of a resolution unanimously adopted by the Postgraduate Correlating Committee, of which Dr. C. H. Neilson is chairman, at its meeting in St. Louis, October 13, 1938. In this clamor for information by the laity, organized medicine must accept its responsibility instead of allowing this group to obtain their information from less reliable sources and with less wisdom in its supervision.

Thus far in the year's program, 207 lectures have been given with an average attendance of approximately thirty women. Impressions gained by the Committee and field workers from the operation of the program thus far may be summarized as follows:

1. There is a distinct need for properly supervised educational programs along medical lines among lay people.

2. The Extension Division of the Department of Agriculture and Home Economics of the University of Missouri is anxious to have reliable material of a medical nature to give the rural women's clubs in its so-called State's Achievement Program.

3. The very nature of the lives of rural women makes their attendance variable due to seasonal factors such as weather, crop planting and harvest time.

4. Collectively, but not individually, members of this group retain their esteem for organized medicine and for its educational programs, especially when presented by physicians themselves and when sponsored by officers of the local medical organizations. It is to be remembered that this program, although state-wide, has been confined strictly to rural areas.

No member of this Committee or its Advisory Committee has appeared on this program before lay audiences. This has been left entirely to the full-time field workers.

The film, "The Birth of a Baby," although quite generally accepted elsewhere, has had insufficient endorsement by local medical societies for the Committee to develop a satisfactory schedule of showings.

RECOMMENDATIONS

Because of its incompleteness, the true worth of this program is not known at this time. The Committee is unanimous, however, in wishing to project into 1940 some plan of education for selected lay groups. To that view, the Committee especially recommends undivided support by every member of the Association for the Missouri Plan for Maternal Welfare and Infant Care. It would be better for organized medicine to meet the demand for lay education than by procrastination to leave this problem in the hands of those not in entire sympathy with its ideals.

RALPH R. WILSON, Chairman,
BUFORD G. HAMILTON,
WINTON T. STACY,
E. LEE DORSETT,
JOSEPH D. JAMES.

Dr. Wilson, Chairman, reporting further, said: I believe that since the establishment of the Committee on Maternal Welfare four years ago, some have forgotten its function. The Social Security Act provided funds for educational work and the State Board of Health, realizing that they had ample work to do of their own, permitted the Association to work in an advisory capacity on this particular program which was a new problem. We have not been sanctioning the New Deal in any

sense whatever. We only knew there was money coming to Missouri and that it was better for us to have some advisory capacity in its spending than to leave it in the hands of people who are not sympathetic. I assure you that had it not been for the activity of the Association in this program you would now have osteopaths in the program of maternal welfare.

On motion, duly seconded, the report was adopted.

The report of the Committee on Health and Public Instruction, Dr. A. R. McComas, Surgeon, Chairman, follows:

REPORT OF THE COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION (McALESTER FOUNDATION)

In the continuance of the practice of the Committee on Postgraduate Course to send out men to address lay audiences, either at the same time that lectures are presented before the component societies or separately, fourteen speakers gave thirty-nine talks in twelve counties. The counties were Cole, Moniteau, Morgan, Miller, Bates, Mercer, St. Francois, Pettis, Clay, Cape Girardeau, Caldwell and Livingston. The number in attendance was reported in only a few instances as follows: Bates, 1000; St. Francois, 450; Pettis, 2109; Clay, 1100; Cape Girardeau, 235. It is important that the type of audience and the number present be reported that our records may show what work is being accomplished.

The Committee called on Mr. Lloyd King, State Superintendent of Schools, and presented the request of the Association that the teaching of physiology and anatomy be made required subjects in the public school curriculum. With the assistance of Mr. VanDyke, Mr. King's office is arranging the courses of study. Both men seemed impressed by the request and the interest manifested by this Association in their work and requested another conference with the Committee when more of the details of other phases of their curriculum had been completed.

A. R. McCOMAS, Chairman,
FRANK G. NIFONG,
E. LEE MILLER,
D. A. ROBNETT,
A. J. DURANT.

Dr. McComas, Chairman, reporting further, said: The final curriculum has not as yet been announced and we have not as yet been called for final conference.

On motion, duly seconded, the report was adopted.

The report of the Committee on Constitution and By-Laws, Dr. Floyd H. Spencer, St. Joseph, Chairman, follows:

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

The following amendments were introduced at the 1938 Annual Session and are to be acted on at the 1939 Session:

Amendments to the Constitution

Amend Article V by striking out "(1)" and the words "and (2) the officers of the Association enumerated in Section 1 of Article IX of this Constitution" and adding one new section so that when amended said article shall read:

ARTICLE V—HOUSE OF DELEGATES

Section 1. The House of Delegates shall be the legislative body of the Association and shall consist of delegates elected by the component county societies. The officers of the Association as enumerated in Section 1, Article IX, of this Constitution shall have the right to attend all meetings of the House of Delegates and all other rights of delegates in such meetings except the

right to vote for anything except officers of the Association. The Past Presidents of the Association shall have all the rights of delegates except the right to vote.

Sec. 2. The officers of the House of Delegates shall be a Speaker and a Vice Speaker elected by the delegates from their body. The Secretary of the Missouri State Medical Association shall be the Secretary of the House of Delegates.

Amend Section 1, Article IX—Officers, by inserting after the word "Treasurer" the words "Speaker and Vice Speaker of the House of Delegates" so that when amended said Section shall read:

ARTICLE IX—OFFICERS

Section 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, a Speaker and a Vice Speaker of the House of Delegates and ten Councilors.

Amend Article XIII of the Constitution by adding the words "and voting" following the word "present" in the third line, so that when amended said article will read:

ARTICLE XIII—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present and voting at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been published twice during the year in THE JOURNAL of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

FLOYD H. SPENCER, Chairman,
FRANK R. TEACHENOR,
ROBERT VINYARD.

DR. ROBERT VINYARD, Springfield: A special committee was appointed to study proposed amendments to the Constitution and By-Laws and they have their report ready, which has been referred to the Council. I call on Dr. H. L. Mantz, Kansas City, to present this report.

DR. HERBERT L. MANTZ, Kansas City: The special committee appointed by the Council to study the various amendments to the Constitution and By-Laws reported to the Council at a special meeting last evening and the report as I shall read it was adopted unanimously by the Council. The report consists of three sections which should be acted upon separately. The first is the amendments to the Constitution. If these amendments are adopted, the second part of the report will be in order. The third portion contains several amendments which are in order regardless of what action is taken on the first two portions.

The Committee approves and recommends the adoption of the changes in the Constitution as proposed in the report of the standing Committee. We have found on investigating the constitutions of other state associations that most of the progressive associations have provided for a speaker and vice speaker of the House of Delegates, viz., New York, Wisconsin, California, Michigan, Minnesota, Colorado, Pennsylvania and the American Medical Association.

On motion, duly seconded, the amendments to the Constitution as reported by the Committee on Constitution and By-Laws were adopted.

The following amendments to the By-Laws presented at the previous Annual Session were contingent upon the adoption of the amendments to the Constitution and are now in order.

Amendments to the By-Laws

Amend Section 4, Chapter III, by striking out the word "President" and inserting the word "Speaker" and by inserting after the word "resolutions" the words "on majority vote of the House of Delegates" so that when amended said Section 4 shall read:

Sec. 4. From among members of the House of Dele-

gates the Speaker shall appoint reference committees to which reports and resolutions on a majority vote of the House of Delegates shall be referred as follows:

Reference Committee on Amendments to the Constitution and By-Laws.

Reference Committee on Resolutions.

Reference Committee on Miscellaneous Affairs.

Reference Committee on Medical Education and Public Welfare and such other committees as may be considered by him to be necessary.

The President shall appoint a Committee on Credentials.

On motion, duly seconded, this amendment was adopted to go into effect at the close of the Session.

Amend Section 1, Chapter IV, by striking out the word "President" and inserting the words "Speaker of the House of Delegates" in the first line and the words "each candidate for Councilor must be a resident of the district for which he is nominated" and by striking out the last sentence, "On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House" so that when amended said section shall read:

Chapter IV—Election of Officers

Section 1. The Speaker of the House of Delegates on the first day of the Annual Session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same councilor district. The Committee on Nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session excepting the President-Elect who shall be nominated from the floor of the House of Delegates.

On motion by Dr. Mantz, duly seconded, this amendment was not adopted.

Amend Section 1, Chapter V, by adding after the word "delegates" in the third line the words "until its Speaker is chosen" so that when amended Section 1, Chapter V, shall read:

Chapter V—Duties of Officers

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates until its Speaker is chosen and shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged and shall perform such other duties as custom or parliamentary usage requires. He shall be the real head of the profession of the state during his term of office and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the councilors in building up the county societies and in making their work more practical and useful.

On motion, duly seconded, this amendment was adopted to go into effect at the close of the Session.

Amend Chapter XII of the By-Laws by adding the words "and voting" after the word "present" in the third line, so that when amended said chapter shall read:

Chapter XII—Amendments

Section 1. These By-Laws may be amended at any Annual Session by a two thirds vote of the delegates present and voting at that Session, if the proposed amendment has been properly submitted to the House and has lain on the table for one day.

Sec. 2. Upon the adoption of this Constitution and these By-Laws all previous constitutions and by-laws are thereby repealed.

On motion, duly seconded, this amendment was adopted.

The following amendments to the By-Laws were offered at the 1938 Annual Session, properly referred to a

Reference Committee and for the reason there were not two thirds of the delegates present at the final session of the House of Delegates, the amendments were referred to the Council and thereafter referred to the Council's Committee for study and report:

Amend Chapter VII, Section 1, of the By-Laws to include a Committee on Control of Venereal Disease and to change the name of the Committee on Maternal Welfare to Committee on Maternal Welfare and Infant Care so that when amended the section shall read:

Chapter VII—Committees

Section 1. The standing committees of this Association shall be as follows:

- A Committee on Scientific Work.
- A Committee on Public Policy.
- A Committee on Publication.
- A Committee on Medical Defense.
- A Committee on Medical Education and Hospitals.
- A Committee on Medical Economics.
- A Committee on Postgraduate Course.
- A Committee on Cancer.
- A Committee on Maternal Welfare and Infant Care.
- A Committee on Mental Health.
- A Committee on Constitution and By-Laws.
- A Committee on Control of Venereal Disease.
- A Committee on Health and Public Instruction (The McAlester Foundation).

Unless otherwise provided in these By-Laws, each of these committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be appointed annually by the President, by and with the consent of the House of Delegates, provided that at the Seventieth Annual Session one member of each of the foregoing committees shall be appointed for a term of three years, one each for two years, and one each for one year.

On motion, duly seconded, this amendment was adopted.

The Committee recommends the adoption of a new section to Chapter VII of the By-Laws defining the duties of the Committee on Control of Venereal Disease to be known as Section 14 which shall read as follows:

Sec. 14. The Committee on Control of Venereal Disease shall consist of five members. The duties of the Committee shall be to review the available information on the venereal disease problem, assemble additional information covering the nature and extent of the facilities which now exist for the diagnosis, treatment and public health control of venereal disease, recommend such supplemental and new state or local facilities and measures as seem desirable in dealing with these infections and to cooperate fully with the State Board of Health and the United States Public Health Service in carrying out such venereal disease programs as have been or may in the future be established.

On motion, duly seconded, this amendment was adopted.

Amend Section 1, Chapter VII, to read as follows:

Chapter VII—Committees

Section 1. The standing committees of this Association shall be as follows:

- A Committee on Scientific Work.
- A Committee on Public Policy.
- A Committee on Publication.
- A Committee on Medical Defense.
- A Committee on Medical Education and Hospitals.
- A Committee on Medical Economics.
- A Committee on Postgraduate Course.
- A Committee on Cancer.
- A Committee on Maternal Welfare and Infant Care.
- A Committee on Mental Health.
- A Committee on Constitution and By-Laws.

A Committee on Health and Public Instruction (The McAlester Foundation).

A Committee on Control of Venereal Disease.

Unless otherwise provided in these By-Laws all committees shall consist of five members, two serving for one year, two for two years and one for three years. At the 82nd Annual Session one man shall be appointed for three years, one for two years and one for one year. Thereafter the President shall appoint as many as are needed to fill vacancies.

On motion, duly seconded, this amendment was adopted.

The report of the Committee on Study of Medical Practice Act, Dr. Lee D. Cady, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON STUDY OF MEDICAL PRACTICE ACT

This committee has acted during the year on the following subjects which were disposed of as follow:

1. The Basic Science Bill recommended last year was placed in final form and turned over to the Committee on Public Policy. It was introduced into the General Assembly as Senate Bill No. 29.

2. Members of the Committee cooperated with the Council and the Committee on Public Policy in drafting an Injunction Bill. The fate of this bill is not known at the time this report is prepared.

3. An Antenuptial Examination Bill for the control of venereal disease in marriage was watched until the time of this report. Last year, what was to become Senate Bill No. 5 was approved "in principle" but disapproved as to particulars by this House of Delegates. During the summer, the matter appeared to be getting out of hand and an emergency resolution was submitted by the Chairman to the Council for consideration. The Council approved the resolution on principles concerning antenuptial examination laws, August 31, 1938, which was published in *THE JOURNAL* in November 1938. These same principles were embodied in a proposed bill by the Young Men's Division of the St. Louis Chamber of Commerce and subsequently turned over to a Citizens' Committee for sponsorship.

This bill, House Bill No. 39, was killed in committee for being "too advanced" and at the same time "too uninclusive." Sponsors of the Senate bill made several modifications before and while the bill was under consideration in the Senate, so that eventually it differed but little in detail from the defunct House Bill No. 39. The last report was that attempts were being made to have the State Department of Health do all the laboratory tests (blood tests for syphilis and smear tests for gonorrhea) to satisfy requirements under the present situation wherein there are no legal provisions for inspection or approval of laboratories. Your Committee had a proper amendment in the hands of the Public Policy Committee to be used should any antenuptial examination bill seem ready to pass. In the preparation of this amendment, it was pretty definitely determined the medical profession of Missouri does not want any strict state control of laboratories or state registration of medical technicians. An elaborate "straw-man" bill was drawn up and circulated for this purpose. It was ascertained that: (a) The psychiatrists do not believe psychologists (qualified or self-styled) should be further controlled by legislation, (b) the roentgenologists agreed almost unanimously that there were insufficient abuses by unqualified sources to make desirable additional legal efforts for legislative control, (c) the physiotherapists were more or less indifferent and presumably satisfied, and (d) the serologists, bacteriologists, pathologists and clinical chemists recommended that only such health department control be designated as to assure the state that "laboratory racketeering" in

antenuptial examinations could not develop. This brief amendment for laboratory approval was drafted with the Committee on Public Policy and redrafted by the attorney for the Association. The fate of this proposed amendment is unknown at the time of this report.

4. A study of lien laws was made. Cooperative studies were initiated with representatives from the state associations of nurses, dentists and hospitals. This work was regretfully discontinued when it became known the Association would not proceed to sponsorship of such a bill this year. The hospital association introduced a hospital lien bill.

5. Some attention was given to a bill for the Annual Registration of Physicians. This matter was suggested by the State Health Commissioner and later drafted by the attorney for the Association. The Council ordered this action too late for the Committee to have more than one member participate. While this is one of the features of the proposed "Integrative Act," the correspondence of the Committee indicated divided opinion on it under present circumstances.

6. A study of the Workmen's Compensation Law of New York was made and a proposed amendment was tentatively drafted. Information sought from organized labor of the state indicated that labor would not itself propose any changes to this law during this session of the General Assembly. The matter was then relegated to further study and possible future action after additional experience has accumulated on the New York law.

7. The proposed Integrative Medical Practice Act was studied further and was still regarded as having desirable features. However, in view of the more urgent legislative program of the Association, this subject was considered as of secondary importance at this time.

8. A proposed Harmful Drug Control Bill was again carried over for future action. Overtures for a cooperative study and action failed to elicit response from the state association of pharmacists. The federal government and several states have recently passed drug control legislation so that some further delay will not be greatly detrimental to Missouri, and a better bill can probably be prepared.

Your Committee wishes to remind the House of Delegates that its existence depends upon the annual pleasure of the House. It recommends, therefore, and moves that the House of Delegates shall approve and order the following resolution:

Resolved, That (1) The Committee on Study of Medical Practice Act shall henceforth be known as the Committee on Medical Practice Laws, and

(2) The Committee shall continue the same general type of work until the 1941 Session of the General Assembly of Missouri.

LEE D. CADY, Chairman,
T. W. COTTON,
O. C. GEBHART,
E. L. SPENCE,
J. MILTON SINGLETON,
E. D. JAMES,
M. PINSON NEAL.

On motion, duly seconded, this report was adopted.

The report of the Committee on Medical-Legal Affairs, Dr. James R. McVay, Kansas City, Chairman, follows:

REPORT OF THE COMMITTEE ON MEDICAL- LEGAL AFFAIRS

The Committee on Medical-Legal Affairs has had no activity as a committee but its members have directed their energies toward assistance to the Committee on Public Policy in its work in the Legislature.

JAMES R. McVAY, Chairman,
C. T. RYLAND,
DOWNEY HARRIS.

On motion, duly seconded, this report was adopted.

No report was made by the Committee on Control of Syphilis.

The report of the Committee on Rural Medicine, Dr. H. A. Lowe, Springfield, Chairman, was read by the Secretary as follows:

REPORT OF THE COMMITTEE ON RURAL MEDICINE

The Committee has had two meetings. The question of a scientific program of special interest to rural practitioners has received consideration. After canvassing fifty secretaries of county societies we have correspondence on file indicating a definite desire for a round table discussion of problems peculiar to rural practice at Annual Meetings. This Committee recommends that the Program Committee give this some thought in arranging the next year's program. If it is found that an hour on the second day could be set aside for a round table discussion on a subject or subjects relating to rural practice we feel it would result in an increase in attendance and a renewed interest in the Sessions by doctors from smaller communities.

The question of prepaid medical insurance has been discussed but from our limited information on the subject it is difficult to see how it could be applied to rural areas.

Friction exists between some counties and state sponsored public health units but your Committee wants to make further study of this problem.

H. A. LOWE, Chairman,
T. W. COTTON,
JAMES A. LOGAN.

On motion, duly seconded, the report was adopted.

The report of the Committee on Survey of Medical and Hospital Facilities in Missouri, Dr. Carl F. Vohs, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON SURVEY OF MEDICAL AND HOSPITAL FACILITIES IN MISSOURI

I am sorry to report that only a few county medical societies have completed their surveys. The American Medical Association has made an honest attempt to find out exactly what the medical men of the country are doing and we have failed dismally. This is also true of reports of the hospitals of the state. Out of 115 hospitals we have received about 35 replies. These reports were supposed to be for the year 1937, so when they do come in they certainly will be out of date. The Committee will now have to ask for a survey of 1938. Whether we will ever be able to accomplish the purpose for which the committee was organized, I do not know; certainly not unless we have better cooperation than we have had in the past. In St. Louis with a membership of 1200 men we have received 100 returns. Kansas City did a fine job but so far as the rest of the county medical societies are concerned the reports are dismal and as Chairman of the Committee I cannot make a report of this survey for the state as a whole. The Committee is at a loss to know how to create interest among the members of the profession in developing statistics that can be used by organized medicine in our campaign against all the enemies that are fighting us. The apathy is pathetic. I hear that this is true to a remarkable degree throughout the country.

On motion, duly seconded, the report was adopted.

The report of the Committee on Conservation of Eyesight, Dr. C. P. Dyer, St. Louis, Chairman, follows:

REPORT OF THE COMMITTEE ON CONSERVATION OF EYESIGHT

A meeting of the Committee on Conservation of Eyesight was held at the Melbourne Hotel, St. Louis, at

12 o'clock noon, June 8. Those present were Drs. Clyde P. Dyer, St. Louis, Chairman; John McLeod, Kansas City; Philip S. Luedde, St. Louis; L. R. Forgrave, St. Joseph; W. L. Post, Joplin, and E. H. Bartelsmeyer, St. Louis, Assistant Secretary.

Mr. E. J. Gilderhans of the Union Electric Company presented a film entitled "The House of Vision." Dr. Dyer stated that the committee of the St. Louis County Medical Society had been using this film in connection with talks given to school children and other lay audiences. The film was made by Audivision, Inc., affiliated with Tradeways, Inc., under direction of Better Vision Institute, R. C. A. Building, Rockefeller Plaza, New York City.

Dr. Forgrave showed a motion picture film on the same subject sponsored by Belgard-Sperro of Chicago.

The Committee was of the opinion that these and similar films could be used to good advantage in presenting talks to lay audiences under the sponsorship of Committee members.

After discussion it was decided the Committee would sponsor the following activities:

1. Education of school children and the lay public generally in the matter of conservation of eyesight through personal addresses and showing of films throughout the state.

2. In this the aid of the Councilors, the county medical societies, the Woman's Auxiliary and county health officers would be enlisted.

3. To disseminate proper publicity in the daily press and the medical press and to counteract adverse publicity.

4. To keep in touch and cooperate with: The National Association for the Prevention of Blindness, the Missouri Commission for the Blind, the American Academy of Ophthalmology, the American Medical Association and all other recognized national and local organizations interested.

5. Prepare a few safe rules concerning conservation of eyesight for distribution in pamphlet form at lay meetings.

6. For the purpose of enlisting the aid of county societies each member of the Committee was assigned the following Councilor Districts: Councilor Districts 1 and 2, Dr. Forgrave; Councilor Districts 3 and 10, Dr. Luedde; Councilor Districts 4 and 5, Dr. Dyer; Councilor Districts 6 and 7, Dr. McLeod, and Councilor Districts 8 and 9, Dr. Post.

Each member of the Committee, keeping in mind the foregoing, volunteered to prepare an outline of duties and policies under which the Committee would operate. The Chairman suggested he would prepare such outline and forward to each member of the Committee for further suggestions and additions.

The Committee approved the suggestion that county medical societies be encouraged to appoint local committees on conservation of eyesight and that each member of the Committee enlist the aid of the Councilors in the districts as assigned as well as "key" men in various county medical societies to assist in carrying out the objectives of the Committee's program of lay education.

It was suggested that the Secretary have reprinted copies of the resolution adopted by the Council at its meeting on April 15, 1938, concerning the cooperation of the National Education Association and the American Medical Association in eyesight conservation, the purpose of such reprints being to give them to school superintendents when making arrangements for presenting programs in schools.

A state wide speakers' bureau of qualified eye physicians to cover all local meetings and nearby counties that do not have specialists was suggested. These speakers need not be members of the local county committee.

The Secretary was requested to ascertain from other

state medical associations what programs on eyesight conservation, if any, they had instituted or sponsored in their respective states.

The Chairman read a letter from Mrs. Mary Ryder, St. Louis, of the Commission for the Blind, as follows:

MISSOURI COMMISSION FOR THE BLIND

St. Louis, Missouri

June 1, 1938

Dr. Clyde P. Dyer
Humboldt Building
St. Louis, Missouri

My dear Dr. Dyer:

We have been notified that you have been honored with an appointment as a member of the State Medical Association's committee on conservation of eyesight.

We are glad to know that such interest is being displayed in this very necessary program of conserving the vision of the indigent people of Missouri. We are also glad that members of our staff have been selected by the Medical Association in this important move.

Because much confusion and many conflicting statements have been made regarding our policies, we are preparing a statement of the policies that regulate our service to the indigent people of Missouri, and will forward a copy to you in a few days.

Yours faithfully,

(MRS.) MARY E. RYDER
Executive Director

It was recommended that clinics cancelled by the Missouri Commission at present, be more limited when resumed.

MISSOURI COMMISSION FOR THE BLIND

St. Louis, Missouri

June 3, 1938

TO WHOM IT MAY CONCERN:

We regret to advise you that our funds for any prevention of blindness work have been exhausted for the balance of this year, due to the slow returns from property taxes.

It is, therefore, necessary that we cancel any clinics scheduled, and defer the giving of any eye care to indigent patients until this fund can be replenished.

This announcement is made with the deepest regret. We shall be glad to get in touch with you when the program is resumed.

Yours faithfully,

(MRS.) MARY E. RYDER
Executive Director

In this connection the Chairman referred to the resolution adopted by the House of Delegates concerning legislation regarding medical care of the blind, which resolution had been referred to the Association's Committee on Public Policy by the House of Delegates at the Jefferson City Session. The Chairman was authorized to convey to the Committee on Public Policy the assurance of complete cooperation in this matter.

The Chairman reported an invitation had been received from the Mississippi Valley Medical Association to place an exhibit depicting the Committee's work and objectives at the forthcoming session. The Chairman was authorized to prepare such an exhibit if satisfactory space would be assigned and the material prepared.

The Chairman called attention to an exhibit to be shown at the American Medical Association San Francisco Session on the medical aspect of aid for the needy blind prepared by the United States Public Health Service and Dr. Conrad Behrens, Chicago, and that perhaps worth while material might be obtained from this source.

The Secretary stated he would prepare a list of physicians specializing in eye, ear, nose and throat work in Missouri by Councilor District for the information of the Committee members when the new edition of the American Medical Association Directory was released.

It was suggested that the members give some thought to stress as a Committee objective a pre-school eye test by atropin; also, the advisability of gathering information as to the reliability of various equipment now on the market for the purpose of disseminating such information to physicians on request.

There being no further business the Committee adjourned at 5 p. m.

The Chairman assisted in the passage of the anti-fireworks ordinance in St. Louis City and in Webster Groves and other members have urged that a similar ordinance be passed in their communities. A statute covering this great menace to the eyesight should be introduced in the legislation and supported by all physicians.

Emphasis must be placed on the need of cooperation of members of each component society. They should plan definite meetings on conservation of eyesight and ask for speakers and motion pictures. We do not feel that we should force our speakers upon societies or ask for certain dates.

September will be the Conservation of Eyesight month and every society should stress this in their plans for programs.

A résumé of the work of the Committee includes (1) forty-five addresses and showing of the film "Seeing How You See" to medical societies and lay audiences of approximately 6975 individuals; (2) seven radio talks, and (3) exhibits at the Missouri Valley Medical Association, the Kansas City Southwest Clinical Society Conference, a Councilor District meeting at Joplin, a Child Health Conference in Kansas City and several other meetings. Approximately 2000 persons viewed the exhibits.

The Committee feels that it has accomplished so little in this important field and that there is so much to be done that we ask your indulgence as well as your assistance during the coming year.

C. P. DYER, Chairman,
JOHN McLEOD,
PHILIP S. LUEDDE,
WINFRED L. POST.

On motion, duly seconded, this report was adopted.

Appointment of Committee on Nominations

The President announced the appointment of the Committee on Nominations as follows:

W. F. Francka, Hannibal, Chairman.
I. D. Kimes, Cameron.
V. V. Wood, St. Louis.
Otto Koch, St. Louis.
William J. Stewart, Columbia.
C. T. Ryland, Lexington.
Morris B. Simpson, Kansas City.
L. M. Lyons, Pierce City.
F. E. Butler, Salem.

At the suggestion of Dr. C. A. W. Zimmermann, Cape Girardeau, Dr. R. Emmet Kane, St. Louis, moved that the Secretary be authorized to send a suitable message to representatives in Congress protesting against the Wagner bill. The President appointed a committee to draft a resolution.

On motion the House of Delegates recessed until 4 o'clock.

Monday, April 10, 1939—Afternoon Session

The adjourned session of the House of Delegates convened at 4 o'clock, Monday, April 10, with Dr. C. A. W. Zimmermann, Cape Girardeau, presiding.

The report of the Council, Dr. Curtis H. Lohr, St. Louis, Chairman, follows:

REPORT OF THE COUNCIL

The Council of the Missouri State Medical Association held a telephone conference on June 5 to consider the question of the enlargement of the State Cancer Hospital to 120 beds and the seeking of federal funds from the Public Works Progress Administration for that purpose.

The result of the conference was a letter to Mr. F. T. Hodgdon, Hannibal, Chairman of the Cancer Commission, protesting against the enlargement and making the institution a general hospital. The following conclusions were stated in the letter: (1) The State Cancer Hospital should not be enlarged at this time; (2) the State Cancer Commission be requested to reconsider its approval of the proposed enlargement of the State Cancer Hospital, and (3) the State Cancer Commission be respectfully requested to extend the privilege of a hearing to the officers and Councilors of our Association whenever a proposal to enlarge the facilities of the State Cancer Hospital is to be considered.

Copies of the letter were sent to Hon. Lloyd C. Stark, Governor, members of the Cancer Commission and members of the Committee on Cancer of the State Association.

Participating in the conference were Drs. Curtis H. Lohr, St. Louis, Chairman of the Council; A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; R. B. Denny, Creve Coeur; William A. Bloom, Fayette; A. J. Campbell, Sedalia; E. P. Heller, Kansas City; H. L. Kerr, Crane; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston; B. W. Hays, Jackson, and James R. McVay, Kansas City.

Meeting of August 31, 1938

The Council of the Missouri State Medical Association met in Jefferson City at the Madison Hotel on August 31, 1938. Dr. Curtis H. Lohr, St. Louis, presided. In attendance were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; E. P. Heller, Kansas City; H. L. Kerr, Crane; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston; B. W. Hays, Jackson, President; J. R. McVay, Kansas City, President-Elect; A. R. McComas, Sturgeon, Chairman of Committee on Health and Public Instruction (McAlester Foundation); Ralph R. Wilson, Kansas City, Chairman of Committee on Maternal Welfare; Carl F. Vohs, St. Louis, Chairman of Committee on Medical Economics; Lee D. Cady, St. Louis, member of Committee on Study of Medical Practice Act, and Mr. E. H. Bartelsmeyer, St. Louis, Assistant Secretary. Guests included Dr. Harry F. Parker, State Health Commissioner, and members of his staff, Drs. John W. Williams and James W. Chapman.

The appointment by President Hays of a special Committee on Conservation of Eyesight authorized at the Jefferson City Session was confirmed as follows: Drs. C. P. Dyer, St. Louis, Chairman (1941); John McLeod, Kansas City (1941); L. R. Forgrave, St. Joseph (1940); Philip S. Luedde, St. Louis (1940); Winfred L. Post, Joplin (1939).

The report of the Treasurer was approved as follows:

August 30, 1938.

Status of Funds

General Fund	\$ 3,815.77
Defense Fund	1,220.76
Legislative Fund	2,240.63
Sinking Fund	4,269.00
	<hr/>
	\$11,546.16

The appointment of a special committee to consist of five members to conduct a study of the Association's Constitution and By-Laws was approved and the following matters referred to the Council by the House of Delegates (Jefferson City Session) were referred to the Committee:

1. Amendment to Chapter VII, Section 1, of the By-Laws changing the name of the Committee on Maternal Welfare to Committee on Maternal Welfare and Infant Care.

2. Recommendation that the name of the Committee on Control of Syphilis be changed to Committee on Control of Venereal Disease and that the Committee be made

a standing committee, and adding a new section (Sec. 14 of Chapter VII of the By-Laws) outlining the duties of the Committee.

3. An amendment to Chapter VII of the By-Laws "unless otherwise provided for in the By-Laws all committees shall consist of five members, two serving for one year, two for two years and one for three years."

The rules and regulations of the Missouri State Highway Commission relative to payment of hospital and medical expense for employees disabled in line of duty, established in accordance with recommendations of the Committee on Medical Economics, were submitted and ordered published in *THE JOURNAL*.

At the request of the Council on Industrial Health of the American Medical Association the establishment of a special Committee on Industrial Health to consist of five members was approved.

Resolutions outlining the method of election of Councilors as provided in Section 2, Article IX of the Constitution were referred to the special Committee on Study of Constitution and By-Laws.

The recommendation that a specified fee be established for immunization was discussed and no action taken. It was the opinion that this was a matter within the discretion of each respective county medical society. It was recommended that each society be encouraged to work out a definite immunization program.

In order to inform the profession thoroughly of State Department of Health programs, the State Health Commissioner was given the privilege of two pages of *THE JOURNAL* each issue for a discussion of the various programs with which the Association is cooperating.

The proposal for the establishment of a State Arthritic Hospital for indigents sponsored by the Clay County Medical Society was referred to the Committee on Medical Education and Hospitals.

Proposed legislation for an annual registration of physicians and a basic science law was referred to the Committee on Public Policy for study and report at the November meeting of the Council.

A resolution regarding antenuptial laws for the control of venereal disease in marriage was adopted provided the principles outlined are subsequently approved jointly by the Committees on Syphilis, Mental Health and Maternal Welfare.

A resolution that the opinion of the Missouri State Bar Association be requested prior to action on a proposed uniform marriage evasion act was adopted.

A resolution presented by the Marion-Ralls County Medical Society suggesting amendment to present laws which would provide appointment of members of the State Board of Health by the Governor from a list of names furnished by the Missouri State Medical Association was approved in principle and referred to the Committee on Public Policy.

A resolution requesting the State Board of Health to sponsor jointly with the Association a Harmful Drug Act was adopted.

A letter from Dr. Olin West, Secretary of the American Medical Association, calling attention to a resolution adopted by the House of Delegates of the American Medical Association at the San Francisco Session stating the desirability of enactment of legislation providing that an additional requirement of full citizenship in the United States be demanded of foreign medical graduates before granting licenses to practice medicine was referred to the Committee on Public Policy for study and report at the November meeting of the Council.

The resolution entitled "Resolution on Cancer Commission, Cancer Committee, etc.," referred to the Council by the House of Delegates was approved in principle to be included as part of the record in the Association's relationship with the Cancer Commission.

A resolution proposing legislation which would place tuberculosis hospitalization, prevention of blindness,

prevention and correction of certain deformities and malformations of childhood, control of cancer and hospitalization and all forms of medical relief under the administration of the Department of Health, thus permitting the matching of such funds in order to secure federal grants was approved in principle and referred to the Committee on Public Policy for study and report to the Council at its next meeting.

Dr. Lee D. Cady, St. Louis, reported that the provisions of the proposed Integrative Medical Practice Act were being studied carefully and a further report would be made at the next meeting of the Council.

Dr. Carl F. Vohs, St. Louis, reported on the activities of the Committee on Medical Economics concerning Group Hospitalization, the Farm Security Administration and the survey of medical and hospital facilities now being carried on by the Association at the request of the American Medical Association and stated that articles on these topics would appear in *THE JOURNAL* from time to time for the information of the members.

Dr. Vohs further reported cooperation with the State Social Security Commission of Missouri in the matter of surveys on the medical need of the Commission's aid to dependent children and that approval of experiments to be conducted in three or four counties as a guide toward future participation in the program of medical care for these dependent children, numbering approximately 12,500 at the present time, was desired. The recommendation of the Committee was approved.

Dr. A. R. McComas, Surgeon, Chairman of the Committee on Health and Public Instruction (McAlester Foundation), reported that his Committee would consult with Mr. Lloyd W. King, State Superintendent of Schools, at an early date, concerning the resolution adopted by the House of Delegates at the Jefferson City Session requesting that an accredited course in elementary anatomy and physiology be included in the curricula.

Drs. James R. McVay and H. L. Kerr reported the activities of the Missouri delegates in attendance at the San Francisco Session of the American Medical Association.

A communication from Dr. W. J. Stewart, Columbia, Director, State Crippled Children's Service, requesting approval of an educational program for parents of crippled children that many congenital deformities can be benefited by early treatment, and physicians as to the type of treatment, was referred to the Committee on Health and Public Instruction for their approval or modification in its discretion.

The resignations of Drs. J. F. Harrison, Mexico; W. E. Breuer, St. James, and James W. Allee, Eldon, as members of the Committee on Public Policy, were accepted. The resignation of Dr. W. E. Breuer as a member of the Committee to Study the Medical Practice Act was accepted. The secretary was instructed to write a letter thanking them for their splendid service to the Association.

On recommendation of Dr. Goodrich, Clark, Lewis and Scotland county medical societies were hyphenated.

The Council approved the appointment of a committee on cancer by each county medical society to cooperate with the State Cancer Commission in the matter of eligibility of patients for admission to the State Cancer Hospital when erected.

Acting upon the request of Dr. E. J. Goodwin, Secretary-Editor, to be relieved of the active responsibilities of his office, Dr. Goodwin was elected Secretary-Editor Emeritus for life.

The Chairman was authorized to appoint a committee of three members of the Council to work out a plan of organization and report to the Council at its next meeting. The Assistant Secretary, Mr. E. H. Bartelsmeyer, was instructed to carry on the responsibilities of the office.

Meeting of December 11, 1938

The Council of the Missouri State Medical Association met in Jefferson City at the Missouri Hotel on December 11, 1938. Dr. Curtis H. Lohr, St. Louis, Chairman, presided. In attendance were Drs. A. S. Bristow, Princeton; H. B. Goodrich, Hannibal; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; A. J. Campbell, Sedalia; E. P. Heller, Kansas City; H. L. Kerr, Crane; E. C. Bohrer, West Plains; E. J. Nienstedt, Sikeston; B. W. Hays, Jackson, President; J. R. McVay, Kansas City, President-Elect; M. B. Simpson, Kansas City, Chairman of Committee on Public Policy; D. A. Robnett, Columbia, Chairman of Committee on Cancer; Carl F. Vohs, St. Louis, Chairman of Committee on Medical Economics; H. L. Mantz, Kansas City, Chairman of Special Committee on Constitution and By-Laws; I. H. Lockwood, Kansas City, President, Jackson County Medical Society; E. L. Johnston, Concordia, member of Committee on Medical Economics; James W. Chapman, Jefferson City, Director, Division of Child Hygiene, State Board of Health, and E. H. Bartelsmeyer, St. Louis, Assistant Secretary.

The minutes of the meeting held on August 31, 1938, were approved as published in *THE JOURNAL*.

On recommendation of the President the following appointments were approved:

Committee on Public Policy: Drs. M. B. Simpson, Kansas City, Chairman (1941); R. Emmet Kane, St. Louis (1940); James Stewart, Jefferson City (1939).

Committee on Study of Medical Practice Act: Dr. E. L. Spence, Kennett.

Adviser to Woman's Auxiliary: Dr. H. L. Mantz, Kansas City.

Committee on Medical Economics: Dr. Ira H. Lockwood, Kansas City (1939).

Committee on Scientific Work: Dr. J. E. Stowers, Kansas City, appointed chairman.

The Chairman announced the following appointments to special committees of the Council:

Study of Constitution and By-Laws: Drs. H. L. Mantz, Kansas City, Chairman; C. A. W. Zimmermann, Cape Girardeau; A. H. Thornburgh, West Plains; Floyd H. Spencer, St. Joseph, and F. E. Butler, Salem.

Committee on Secretary-Editor: Drs. E. P. Heller, Kansas City, Chairman; R. B. Denny, Creve Coeur, and H. B. Goodrich, Hannibal.

These appointments were confirmed by the Council.

The Chairman appointed the following members to the Committee on Auditing and Appropriations: Drs. H. B. Goodrich, Chairman, A. S. Bristow and E. C. Bohrer.

The report of the Treasurer, Dr. Ralph L. Thompson, St. Louis, was referred to the Committee on Auditing and Appropriations as follows:

STATUS OF FUNDS	
General Fund	\$1504.33
Defense Fund	1220.76
Legislative Fund	2614.63
Sinking Fund	4269.00
Total	\$9608.72

The Council selected the dates of April 10, 11 and 12, 1939, for the Excelsior Springs Session.

The General Committee on Arrangements for the Annual Session was appointed as follows: Drs. A. S. Bristow, Chairman; E. P. Heller and A. J. Campbell.

On recommendation of the General Committee on Arrangements, Dr. David E. Musgrave, Excelsior Springs, was appointed General Chairman of the Local Committee on Arrangements.

Authority was granted the Committee on Scientific Work to invite not more than eight guest speakers for the Annual Session.

The Secretary presented a letter from Dr. H. I. Spec-

tor, St. Louis, on behalf of the American College of Chest Physicians suggesting the appointment of a Committee on Control of Tuberculosis to act in cooperation with other existing committees and nonofficial agencies interested in this field of medicine. The appointment of such a committee to consist of three members was approved.

A letter from Dr. Louis H. Jorstad, Chairman, Missouri State Committee of the American Society for the Control of Cancer, regarding approval of hospitals qualified to give information on sources of adequate cancer treatment was referred to the Committee on Cancer for a report.

A letter from Dr. Harry F. Parker, State Health Commissioner, directed the attention of the Council to the urgent need of securing additional funds for the state laboratories so that an adequate supply of containers or mailing outfits might be procured immediately, and that a more adequate appropriation should be made at the next session of the legislature for the support of state laboratories. The Council was in full accord with the need of such additional appropriation for the current year as well as for replacements and new equipment necessitated by the extra demands made upon the laboratories and urged every effort be made to secure such appropriations.

An appropriation of \$50 was voted the Woman's Auxiliary to assist in the expense incurred as a result of conducting the annual essay contest among the students of high schools of the state and other expenses, such as programs of the annual session.

A letter from Dr. M. J. Bierman, St. Louis, was read and the Secretary was instructed to reply.

The issuance of bulletins from time to time to county medical societies was endorsed.

The report of the Committee on Public Policy was adopted. The Chairman, Dr. M. B. Simpson, announced that the county medical societies would be informed by bulletin of the Association's legislative activities.

Authorization was given the appointment of a special committee of five members to study the situation of alien physicians with respect to how their services might be utilized to the best interest of the public, in what capacities and locations and in what numbers in ratio to the population and the various racial groups.

Dr. Bohrer presented a proposed "Pharmacy and Drug Act" sponsored by the Board of Pharmacy of Missouri. This proposed act was referred to the Committee on Public Policy.

The report of the Committee on Medical Education and Hospitals was adopted as follows:

The Committee on Medical Education and Hospitals has given careful consideration to the matter of the establishment of a Hospital for Arthritics at Excelsior Springs, proposed by the Clay County Medical Society, the consideration of which was referred to the Committee by action of the Council on August 31, 1938.

A meeting of the Committee was held in St. Louis in the headquarters office of the Association on October 24, 1938, with all members present. Dr. E. J. Baird and Dr. E. C. Robichaux, representing the Clay County Medical Society, were present by invitation.

The Committee had before it the resolution adopted by the Clay County Medical Society together with a memorandum entitled "Presentation of Facts Relating to the Establishment of a Hospital for Arthritics at Excelsior Springs" prepared by the Clay County Medical Society on August 30, 1938, and submitted to the Council at its meeting on August 31, 1938. The resolution follows:

WHEREAS, There are many citizens of the state suffering with arthritis in its various forms and in varying degrees of disability (estimated to be in excess of four hundred thousand), and

WHEREAS, This is a progressively disabling condition rendering many of its victims dependent on public charity, and especially rendering them medically indigent, and

WHEREAS, No entirely adequate treatment for this affliction is known, and

WHEREAS, There is, in this county, at Excelsior Springs, a spa which for fifty years has treated these sufferers with more than ordinary success, and

WHEREAS, The federal government has shown faith in this

spa by spending, in conjunction with the city, a million dollars for the proper housing and application of this group of waters in the treatment of chronic ailments, including arthritis, now, therefore be it

Resolved, That the Council of the Missouri State Medical Association be, and hereby is, requested to confer with the Governor and State Legislature, asking for an appropriation adequate for the construction of a hospital at Excelsior Springs for research in, and the treatment of indigent arthritics.

The conclusion as submitted in the memorandum reads as follows:

For sixty years Excelsior Springs has devoted much of its medical energy to the alleviation of arthritis and thousands of friends from all states contiguous to Missouri, will vouch for her success in that field. We submit the reflection that the establishment of a hospital in Excelsior Springs for research in the treatment of arthritis would not only greatly reduce human suffering in that field in this state, but would materially advance the medical and economic progress of the State of Missouri.

It was further pointed out to the Committee by Drs. Baird and Robichaux that

1. The establishment of an arthritic hospital would enable research to be carried on and thus advance medical science in the treatment of this disease.

2. It would be established for the exclusive care of the indigent sick with proper safeguards for limiting the facilities to the indigent.

3. It would enable instruction to be given in the institution as to proper methods of home care to be followed by patients subsequent to leaving the hospital.

4. A 200 bed capacity hospital is recommended.

5. It would relieve the medical profession of treatment now being rendered to some of their indigent arthritic patients.

6. The establishing of an arthritic hospital would attract the attention of pay patients who now go abroad for similar treatment to spas in this country.

The Committee is appreciative of the fine spirit of cooperation of the representatives of Clay County Medical Society in presenting other data, both scientific and factual. Research in the treatment of arthritis was emphasized. The Committee appreciates the desirability of research in this field of medicine but feels that from a practical point of view, the establishing of an arthritic hospital at Excelsior Springs would not for the purpose of research attract a sufficient number of full time physicians to constitute a competent staff. The cost of maintaining such a staff, in the event it were possible to secure a competent one, would be far beyond what should be necessary if the hospital were located in a city where a competent staff could be secured at less expense. A 200 bed hospital is proposed. The average time for hospitalization of an arthritic patient in such a hospital would necessarily be longer than hospitalization of other cases, perhaps two to three months for each patient. Without data compiled by a competent survey of our state as to the number of arthritic patients requiring hospitalization, the Committee cannot assume that a hospital of 200 bed capacity would be sufficient to meet the need, neither can it assume a hospital of 2000 bed capacity would suffice. The definite need must first be ascertained. It was further pointed out to the Committee that in order to establish such a hospital in Excelsior Springs it was proposed that a bill be presented to our state legislature which meets in January 1939 which would establish the hospital, a board for its government, provide rules and regulations for the admission of indigent patients and an appropriation for building and maintenance, probably matched by federal funds.

In this connection the Committee has noted the attitude of the medical profession expressed at the Special Session of the House of Delegates of the American Medical Association in Chicago, September 1938, toward the recommendations of the National Health Conference wherein a ten year program for the establishment of hospitals comprising 360,000 beds in general, tuberculosis and mental hospitals in rural and urban areas was definitely recommended. The House of Delegates "favored the expansion of general hospital facilities where need exists. The hospital situation would indicate that there is at present a greater need for the use of existing hospital facilities than for additional hospitals. It recommended the approval of the recommendation of the Technical Committee of the National Health Conference stressing the use of existing hospital facilities. The stability and efficiency of many existing church and voluntary hospitals could be assured by the payment to them of the costs of the necessary hospitalization of the medically indigent."

Your Committee therefore believes in view of the report of the National Health Conference proposing legislation for the care of the medically indigent generally, the attitude of the medical profession as expressed by the House of Delegates and the probability of the introduction in Congress of a bill, which if adopted will influence local state legislation along definite lines, that it would be most inadvisable to propose the legislation recommended by the Clay County Medical Society at the present session of our state legislature.

Your Committee is in sympathy with the movement sponsored by the Clay County Medical Society and its humanitarian desire to afford additional facilities for the relief of the indigent arthritic patients but cannot recommend the establishment of a state arthritic hospital in Excelsior Springs or elsewhere in our state in view of the development of a

general federal program for the care of the indigent sick or until the trend of such legislative program has been definitely established. Your Committee gratefully acknowledges its appreciation of the helpful cooperation of Drs. Baird and Robichaux and is most willing to continue its pleasant relationship with the representatives of Clay County Medical Society in the hope that conclusions can be reached after the definite need for a state arthritic hospital has been established and the general program for the care of the indigent sick has been adopted by our federal and state governments.

L. W. DEAN, M.D., Chairman.

ROSS A. WOOLSEY, M.D.,

H. W. CARLE, M.D.,

The activity of the Postgraduate Correlating Committee in emphasizing a specific disease or a health problem of paramount public importance in each issue of THE JOURNAL was commended.

Dr. D. A. Robnett reported that the Committee on Cancer had offered its cooperation to the Cancer Commission in plans for the administration of the Cancer Hospital as well as in the selection of the personnel that will compose the staff. The report was adopted.

Dr. Carl F. Vohs reported that detailed state wide plans for prepayment medical care are now being studied by the Committee on Medical Economics and would be submitted to the county medical societies for consideration when final conclusions and recommendations have been reached by the Committee. The report was adopted and the Committee instructed to continue its work.

The report of the Council's Committee on the Study of the Constitution and By-Laws, Dr. H. L. Mantz, Chairman, was accepted and the Committee authorized to expend a sum not to exceed \$50 for legal advice in this connection. The report of the committee follows:

The Committee met November 13 at West Plains, with Dr. H. L. Mantz, Kansas City, Chairman, presiding. The following resolution concerning the method of election of Councilors as provided in Section 2, Article IX, of the Constitution was adopted as changed by the Committee. The changes made and additions are placed in parentheses.

The resolution outlining method of election of Councilors as provided for in Section 2, Article IX, of the Constitution follows:

WHEREAS, Said section provides "The delegates present from each Councilor District shall meet on the morning of the third day of the Annual Session and elect the Councilor from that District. In the event of death, resignation or removal of any Councilor, the Council may appoint a successor to serve until the vacancy is filled at the next Annual Session. All of the officers shall serve until their successors are elected and installed, and

WHEREAS, A definite method of procedure should be outlined in order that all elections be held uniformly, therefore be it

Resolved, By the House of Delegates that the following procedure prevail:

At the close of the session on the first day the Secretary shall prepare lists of the delegates registered from the various Councilor Districts in which vacancies are to be filled, which shall be posted in the assembly hall and a copy given to the Councilors whose terms expire.

The Councilors in collaboration with the delegates shall determine upon the time and place of the meeting to be held on the morning of the third day of the Annual Session. The Secretary after being notified of such meeting shall cause a notice of the meeting to be posted in the assembly hall (and make an announcement of the meeting in the House of Delegates or scientific assembly). The Councilor shall act as temporary chairman of the meeting of the delegates from each respective Councilor District. In the event a Councilor is absent the President shall designate a delegate to perform these duties. The first order of business shall be to elect from among the delegates a permanent chairman and a secretary (after which the Councilor shall retire from this meeting). The chairman shall state the meeting is called for the purpose of electing a Councilor to serve for a period of two years and that each candidate must reside or practice in the District. Nominations shall be received from the floor. The election shall be by (secret) ballot and a majority of the votes cast shall be necessary to elect. In case no nominees receive a majority on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast when he shall be declared elected. The election shall be certified to the House of Delegates by the chairman and secretary on a form to be prescribed.

If no election has been certified from a Councilor District the incumbent shall serve until the next Annual Session.

In the event a delegate or his authorized alternate has not registered at the Session in time to be included on the list prepared and posted by the Secretary, he may attend the meeting on the morning of the third day of the Session and cast his vote for the election of a Councilor, provided he has registered at the Session and his delegate's credentials bear the approval of the Committee on Credentials, and be it further

Resolved, That this resolution meets with the approval of the Council and is respectfully submitted to the House of Delegates at the 1939 Annual Session.

To the Secretary of the Missouri State Medical Association:

This is to certify that at a meeting of the delegates of the Councilor District held on at a. m. of, was duly elected Councilor for a period of two years in accordance with Section 2, Article IX, of the Constitution with the resolution adopted by the House of Delegates outlining the method of election. delegates were present.

....., Chairman

....., Secretary

..... Mo., Date.....

The Committee favors amending the By-Laws to change the present conflict between our Constitution and By-Laws and those of the American Medical Association but does not desire to offer a specific change pending more complete revision. The Committee took action in regard to the resolution on the election of Councilors as offered by Dr. Lee D. Cady. The Committee feels the election of Councilors by a society as a whole could be construed as solicitation for the election of the office. The Committee also felt that it would not be to the best interest of the society to have the Councilor elected by the membership at large of the two large medical societies. The Committee feels that the entire Constitution and By-Laws should be carefully rewritten and revised and that piecemeal efforts are unsatisfactory. The Committee requests that the Council authorize the Committee to secure legal advice so that this revision may be made in accordance with the technical difficulties that seem to confront the practice of medicine.

On recommendation of the Committee on Auditing and Appropriations the following budget for 1939 was adopted:

Salaries (office and JOURNAL)	\$12,500.00
Printing of THE JOURNAL	6,700.00
Legislation	2,500.00
Defense	1,000.00
Postage	700.00
Postgraduate Instruction	1,200.00
Printing and Stationery	500.00
Traveling Expenses, Secretary and Assistant Secretary	1,100.00
Telephone and Telegraph	650.00
Rent of Office and Light	1,200.00
Meetings:	
Annual Session	
Council and Councilors Expenses	} 3,000.00
Committee Meetings	
General Expense and Miscellaneous	700.00
	\$31,750.00

On motion the meeting adjourned at 4:40 p. m.

CURTIS H. LOHR, Chairman.

The minutes of the Council meetings of April 9 and April 10 (page 309) were read.

On motion the report was approved and the portion of the report dealing with proposed changes in the By-Laws was referred to the Reference Committee on Constitution and By-Laws.

Dr. A. H. Thornburgh, West Plains, read the report of the Reference Committee on Constitution and By-Laws:

REPORT OF THE REFERENCE COMMITTEE ON CONSTITUTION AND BY-LAWS

A draft of a new Constitution has been placed in our hands which we are recommending. This will lie over until the next Annual Session. After studying the Constitution and By-Laws which we have had for some time and considering that this organization is a corporation and we can make only certain changes in the Constitution without referring the proposed changes to the proper state authorities, we have made this proposed Constitution very short.

Proposed Constitution

ARTICLE I—NAME

The name and title of this organization shall be the Missouri State Medical Association, and by such name shall have the right to contract and be contracted with, to plead and implead, to sue and be sued, and shall have the right to acquire, own, hold, mortgage and dispose of such real and personal property as shall be necessary for a proper maintenance and conduct of its affairs.

ARTICLE II—PURPOSES

The purposes of this Association shall be to bring into one compact organization the medical profession of the State of Missouri; to extend medical knowledge and advance medical science; to elevate the standards of medical education; to promote friendly intercourse among physicians; to safeguard the professional integrity of its members and to establish and maintain them in appropriate and equitable relationship with the public, with the government and with all agencies working in the field of health and welfare; and to enlighten and direct public opinion in regard to the problems of medicine and health for the best interest of the people of the state.

ARTICLE III

This Association shall have the right to enact By-Laws providing for the government, management and control of the Association.

Dr. Ralph R. Wilson, Kansas City, offered the following resolution on "Prenatal Blood Test Bill":

WHEREAS, In the national campaign to eradicate syphilis, federal, state and municipal governments are enacting various types of legislation, there being at least thirty-seven premarital examination bills and at least twenty prenatal blood test bills in state legislatures this year, and

WHEREAS, There are now five states which have already enacted prenatal blood test laws to further the control of congenital syphilis and the discovery of marital syphilis, and

WHEREAS, The Missouri Social Hygiene Association proposes to sponsor such a prenatal blood test bill and submits to us for constructive criticism and approval a bill to be introduced into the General Assembly in 1941, to wit, viz.,

WHEREAS, Since it is already the virtual practice of a regularly licensed physician to take prenatal blood tests, and a legal requirement affecting other types of practitioners would only elevate the standards of maternal and prenatal care and improve public health, and already within the lawful police power of the state health officer to effect the same blood test requirement by edict, therefore be it

Resolved, That the House of Delegates approve the purpose, the principles outlined and the particular phraseology of the Missouri Social Hygiene Association's Prenatal Blood Test Bill for 1941 as above submitted.

This resolution was referred to the Reference Committee on Medical Education and Public Welfare.

Dr. C. P. Dyer, St. Louis, offered the following amendment:

Amend Chapter VII of the By-Laws by enacting a new section to be known as Section 15, to read as follows:

Sec. 15. The Committee on Conservation of Eyesight shall consist of five members and such other associate members as the Committee may deem advisable. This Committee shall promote and maintain an educational program in each Councilor District, before medical and lay audiences, relative to ocular hygiene, conservation of eyesight and prevention of blindness. It shall correlate its program with that of the Committee on Postgraduate Course and the local, state and national associations or societies for the prevention of blindness.

This amendment was referred to the Reference Committee on Constitution and By-Laws.

Dr. William J. Stewart, Columbia, offered the following amendment:

Amend Chapter VII of the By-Laws by enacting a new section to be known as Section 16, to read as follows:

Sec. 16. The Committee on Fractures shall consist of five members. The term of each member shall be for a period of five years. The first committee shall be ap-

pointed for terms of one to five years, respectively, designated by the present President of the Association, and one member shall be appointed annually thereafter for a five year period to succeed each retiring member. In addition the Chairman of the Committee shall have the right to appoint three junior members to work under his direction. The duties of this Committee shall be to disseminate information regarding the current and approved methods of handling fractures and to stimulate interest therein, such information to be disseminated to licensed practitioners of medicine and to lay groups approved by the Committee. It shall correlate its programs with those of the Committee on Postgraduate Course.

This amendment was referred to the Reference Committee on Constitution and By-Laws.

Dr. W. F. Francka, Hannibal, asked that the following questions presented by the Marion-Ralls County Medical Society be referred to the proper committee: What is actually being treated at the cancer clinics besides cancer? Who is being treated at the cancer clinics? What is the attitude of the men conducting these clinics?

These questions were referred to the Reference Committee on Medical Education and Public Welfare.

Dr. R. Emmet Kane, St. Louis, chairman of the committee appointed to draft a resolution in opposition to Senate Bill 1620, offered the following resolution in opposition to the Wagner Act, which was adopted:

WHEREAS, There is pending before the United States Congress a bill amending the Social Security Act which "provides for the general welfare by enabling the several states to make more adequate provision for public health prevention and control of disease, maternal and child health services, construction and maintenance of hospitals and needed health centers, care of the sick, disability insurance and training of personnel and for other purposes," and

WHEREAS, This bill definitely establishes great concentration of power and authority in the federal government over matters that are the direct concern of the individual citizen and of the individual states of the Union, and

WHEREAS, This bill provides for the expenditure of enormous sums of money to be provided by taxpayers already overburdened with known and hidden taxes, and

WHEREAS, This bill opens wide the door to a form of state socialism which is destructive of our present concept of representative democracy, and

WHEREAS, This bill represents the existence of a crying need for federal aid for and control of medical and hospital life in America which does not in truth and in fact exist, therefore be it

Resolved, By the Missouri State Medical Association in convention assembled, that we urge our representatives in Congress to work for the defeat of Senate Bill 1620, and be it further

Resolved, That each component society of this Association be apprised of this act, and be it further

Resolved, That a copy of these resolutions be sent to the two senators from Missouri and to each of our representatives in Congress accompanied by a request for information as to the position they will take when this bill comes up for consideration and action.

Dr. R. M. James, Joplin, invited the Association to meet in Joplin in 1940. The invitation was unanimously accepted.

On motion, duly seconded, the House of Delegates adjourned.

Monday, April 10, 1939—Evening Session

The House of Delegates met Monday at 9:45 p. m. as a Committee of the Whole. Dr. C. A. W. Zimmermann, Cape Girardeau, appointed Dr. R. Emmet Kane, St. Louis, to conduct the meeting.

Dr. Carl F. Vohs, St. Louis, Chairman of the Committee on Medical Economics, discussed the growth of the work of the Committee and copies of recommendations of the Committee were distributed.

The following members took part in the discussion: Drs. Carl F. Vohs, St. Louis; L. M. Lyons, Pierce City; W. T. Coughlin, St. Louis; C. H. Neilson, St. Louis; C. E. Gilliland, St. Louis; E. P. Heller, Kansas City; F. E. Butler, Salem; Alphonse McMahon, St. Louis; John A. Growdon, Kansas City; C. P. Hungate, Kansas City; R. G. Cooper, St. Charles; John McLeod, Kansas City;

A. L. Stockwell, Kansas City; H. L. Kerr, Crane; H. C. Lapp, Kansas City; Ira H. Lockwood, Kansas City; Curtis H. Lohr, St. Louis; George H. Thiele, Kansas City; J. H. Jennett, Kansas City; W. A. Myers, Kansas City; Joseph C. Peden, St. Louis.

On motion, duly seconded, the Committee of the Whole recommended that the report of the Committee on Medical Economics be received and the Committee be instructed to continue its study of this problem.

A motion, duly seconded, that the Committee of the Whole rise and report, carried.

Wednesday, April 12, 1939—Afternoon Session

The House of Delegates convened at 3:00 p. m. with Dr. C. A. W. Zimmermann, Cape Girardeau, in the Chair.

The Secretary reported a quorum present.

The President reported that the Committee of the Whole, in special session Monday evening, considered the Report of the Committee on Medical Economics and recommended that the House of Delegates receive this report and that the Committee on Medical Economics be instructed to continue its work.

On motion of Dr. R. Emmet Kane, St. Louis, duly seconded, the report of the Committee on Medical Economics was received, an expression of thanks and appreciation was extended to the members of the Committee for their work and the Committee was instructed to continue its study of this problem.

The minutes of the previous meeting were read and on motion approved.

Nomination for President-Elect

Dr. R. Emmet Kane, St. Louis, nominated Dr. Cyrus E. Burford, St. Louis, for President-Elect.

On motion, duly seconded, the Secretary was instructed to cast the unanimous ballot of the House of Delegates for Dr. Cyrus E. Burford, St. Louis, as President-Elect. The Secretary cast the unanimous ballot of the House for Dr. Cyrus E. Burford, St. Louis, as President-Elect of the Missouri State Medical Association for the ensuing year and the President declared Dr. Burford elected.

Dr. Burford was escorted to the platform by Drs. Alphonse McMahon and R. Emmet Kane, St. Louis.

DR. CYRUS E. BURFORD, St. Louis: Mr. Presiding Officer, Members of the Missouri State Medical Association: I want you to know that I appreciate this as the greatest honor that can come to a medical man in Missouri. If I had not felt it thoroughly before this year, hearing the program and seeing the work of this present assembly and the intense interest taken in the scientific work and in the legal matters having to do with the betterment of medicine in Missouri, I surely would feel that way now. I will not tell you what my efforts will be because I am not sure what they may be. I expect to associate with the doctors of this great commonwealth this next year and see what they think is the best thing to be done for medicine in Missouri and be guided by their feeling. I want you to know that for the next year I am the servant of the Association. More than that I cannot say. I thank you for this honor which is the highest that can come to me in Missouri, or in my lifetime.

Report of the Committee on Nominations

For Vice Presidents: Dr. E. S. Smith, Kirksville; Dr. Guy D. Callaway, Springfield, and Dr. J. E. Baird, Excelsior Springs.

For Delegates to the American Medical Association: For Delegate, Dr. R. Emmet Kane, St. Louis; alternate, Dr. Joseph C. Peden, St. Louis. Delegate, Dr. James R. McVay, Kansas City; alternate, Dr. C. A. W. Zimmermann, Cape Girardeau.

On motion, duly seconded, these officers were declared elected.

The Secretary reported the results of the election of Councilors as follow:

2nd District.....Dr. H. B. Goodrich, Hannibal
4th District.....Dr. R. B. Denny, Creve Coeur
6th District.....Dr. A. J. Campbell, Sedalia
8th District.....Dr. H. L. Kerr, Crane
10th District.....Dr. E. J. Nienstedt, Sikeston

On motion of Dr. L. M. Lyons, Pierce City, duly seconded, a vote of thanks was extended to the physicians in the House of Representatives of Missouri for their cooperation, splendid assistance and continued interest in legislation affecting public health and the medical profession.

Installation of Dr. McVay

Dr. James R. McVay, Kansas City, President-Elect, was escorted to the platform by Drs. E. P. Heller and Herbert L. Mantz, Kansas City.

DR. JAMES R. McVAY, Kansas City: A year ago in Jefferson City I had happen to me that which one of our members has just had happen to him, that is, he received what he deemed one of the greatest honors of his medical career. I told you then that I appreciated the honor which you had shown me, and I appreciate it even more now because in this year as President-Elect I have had some opportunity to see what a wonderful service is possible as an officer of the Missouri State Medical Association. I have a lot of hope for the future and some of these hopes have borne fruit already. At this year's session we are proud to feel that we have had a larger and more interested attendance than has been the case for a number of years at our annual sessions. Next year some things are to be added which we hope will increase both the attendance and the interest. As presiding officer I should like to be in the position of a coordinating chairman, helping each of the other officers and committee members to coordinate in carrying on their work for the Association.

I want you to know that at all times I will be most happy to have constructive criticism from any of you. I know that you are interested in the same ideals that I am. Even if the criticism is not constructive give it to me anyway because I want an opportunity to help develop a real medical association that is known throughout the United States as one of the best, with the highest in scientific attainments of any of the forty-eight state associations and with the largest attendance.

Dr. James R. McVay, Kansas City, made the following appointments to committees:

Scientific Work: F. E. Walton, St. Louis; Associate Members, Ralph R. Coffey, Kansas City; Dudley S. Conley, Columbia.

Postgraduate Course: C. H. Neilson, St. Louis; Ralph E. Duncan, Kansas City; W. R. Moore, St. Joseph.

Public Policy: James Stewart, Jefferson City; Associate Members, Donald M. Dowell, Chillicothe; Urban J. Busiek, Springfield.

Defense: C. E. Hyndman, St. Louis; M. J. Owens, Kansas City; L. P. Forgrave, St. Joseph.

Medical Education and Hospitals: L. W. Dean, St. Louis; Dudley S. Conley, Columbia; M. H. Black, Joplin.

Cancer: E. Kip Robinson, Kansas City; E. C. Ernst, St. Louis; T. S. Lapp, Fulton.

Medical Economics: Ira H. Lockwood, Kansas City; W. F. Francka, Hannibal; C. A. W. Zimmermann, Cape Girardeau.

Mental Health: F. A. Carmichael, St. Joseph; Ralf Hanks, St. Joseph.

Maternal Welfare and Infant Care: J. D. James, Springfield; Borden S. Veeder, St. Louis; John Aull, Kansas City.

Health and Public Instruction: E. Lee Miller, Kansas City; John S. Knight, Kansas City; Associate Members, Dudley A. Robnett, Columbia; A. J. Durant, Columbia.

Constitution and By-Laws: Herbert L. Mantz, Kansas

City; B. Landis Elliott, Kansas City; H. S. Langsdorf, St. Louis.

Fractures: M. L. Klinefelter, St. Louis; Frank D. Dickson, Kansas City; William J. Stewart, Columbia; H. K. Wallace, St. Joseph; James D. Horton, Springfield.

Physical Therapy: Frank L. Feierabend, Kansas City.

Medical Practice Act: Lee D. Cady, St. Louis; J. Milton Singleton, Kansas City; T. W. Cotton, Van Buren; E. D. James, Joplin; O. C. Gebhart, Oregon; M. Pinson Neal, Columbia; E. L. Spence, Kennett.

Medical-Legal Affairs: C. T. Ryland, Lexington.

Control of Venereal Disease: W. S. Sewell, Springfield; R. L. Sutton, Jr., Kansas City.

Conservation of Eyesight: Winfred L. Post, Joplin; Associate Member, George A. Hornback, Hannibal.

Tuberculosis: E. E. Glenn, Springfield; George D. Kettelkamp, Koch; R. H. Runde, Mount Vernon.

Industrial Health: E. C. Funsch, St. Louis; J. E. Castles, Kansas City; W. M. Kinney, Joplin; H. I. Spector, St. Louis; G. T. Bloomer, St. Joseph.

Rural Medicine: H. A. Lowe, Springfield; T. W. Cotton, Van Buren; J. A. Logan, Warsaw.

Survey of Medical and Hospital Facilities in Missouri: Carl F. Vohs, St. Louis; Ralph R. Wilson, Kansas City; E. H. Bartelsmeyer, St. Louis.

Advisor to Woman's Auxiliary: H. L. Mantz, Kansas City.

On motion, duly seconded, these appointments were approved.

Dr. O. P. Hampton, St. Louis, reported for the Reference Committee on Amendments to the Constitution and By-Laws as follows:

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

An amendment was offered proposing the addition of another section to Chapter VII, Section 15, to designate the duties of the Committee on Conservation of Eyesight.

On motion, duly seconded, this amendment was adopted.

An amendment was offered proposing the addition of another section to Chapter VII, Section 16, to designate the duties of the Committee on Fractures.

Dr. William J. Stewart, Columbia, offered an amendment to this amendment, inserting after the words "each retiring member" the sentence "In addition, the Chairman of the Committee shall have the right to appoint three junior members to work under his direction."

On motion, duly seconded, this amendment was amended and adopted.

An amendment was offered to add another section to Chapter VI, Section 12, to read as follows:

Section 12. The Council shall be empowered to elect an Executive Secretary who need not be a member of the Missouri State Medical Association, who shall perform such duties as the Council may designate and who shall receive such salary and serve for such period and under such conditions as the Council may determine.

On motion, duly seconded, this amendment was adopted.

An amendment was offered to Chapter VII, repealing Section 4 and inserting in lieu thereof a new section to read as follows:

Section 4. The Committee on Publication shall consist of five members, including the Editor or Acting Editor. The Committee shall be appointed by the Council annually. The Chairman shall be designated by the Council. It shall have referred to it all reports on scientific subjects and all scientific papers and discussions heard before the Association. It shall be empowered to curtail, abstract or reject papers and discussions. It shall arrange for the publication and distribution of THE JOURNAL.

On motion, duly seconded, this amendment was adopted.

On motion, duly seconded, the report was adopted as a whole.

Dr. Ralph R. Wilson, Kansas City, Chairman, reported for the Reference Committee on Resolutions as follows:

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

The following resolution, drafted by Dr. E. P. Heller, Kansas City, and adopted by the council of the Jackson County Medical Society, was referred to the Committee:

The Council of the Jackson County Medical Society, meeting April 5, 1939, in executive session and mindful of the obligations of scientific medicine to the citizens of the State of Missouri hereby resolves that,

WHEREAS, The State of Missouri has set up requirements which every practitioner of medicine must meet as a requisite to licensure, and

WHEREAS, The medical profession has for many years cooperated with governmental agencies by maintaining the highest professional standards for the protection of public health in the communities and hospitals of this state, and

WHEREAS, Persons professing to practice a healing art of one form or another are being allowed to practice medicine in all its branches without proper license so to do, and

WHEREAS, This practice on the part of healing (?) cults amounts, in Missouri, to confiscation of rights and property of duly licensed doctors of medicine, and a lowering of the standards of community and hospital practice in many localities in this state, therefore be it

Resolved, That the Council of the Jackson County Medical Society go on record as instructing its delegation to the State Association Meeting at Excelsior Springs, April 10 to 12, 1939, as follows:

1. To call the attention of the State Board of Health to these known facts and request immediate corrective action.

2. To report to the Bureau of Medical Education and Hospitals of the American Medical Association all standardized hospitals known or hereafter discovered to be permitting practice therein of cultists or others not licensed to practice medicine in Missouri, as determined by a survey by Councilor Districts, by incumbent Councilors of the State Association.

3. To request that wherever a locality exists which cannot provide adequate medical care for the sick and afflicted or wherever properly trained medical personnel does not exist to carry on the preventive medical program of the State Health Department, the Commissioner of Health of Missouri be requested to notify the President of the State Medical Association so that he, in turn, may take proper steps to notify eligible physicians of the vacant field for medical practice or public health work as the case may be, therefore be it further

Resolved, That a copy of this resolution be forwarded at once to the officers of the State Association and to the Commissioner of Health, State of Missouri.

On motion, duly seconded, this resolution was adopted.

Another resolution referred to this Committee follows:

WHEREAS, The Seventy-Fifth Congress passed an Act authorizing the Secretary of War to construct a building to replace the present Army Medical Library and Museum Building and the President approved the Act on June 14, 1938, and

WHEREAS, This Library is commonly referred to as the Army Medical Library, but it is in every way essentially a library for the medical profession and, through the profession, a library for the people. It is an "Army" library only in the sense that it has been built up to its present preeminence among the medical libraries of the world through the interest and energy of successive Surgeon Generals and librarians and is administered by the Surgeon General of the Army as best he can with the resources provided for that purpose by Congress, and

WHEREAS, It is unfortunate that such a request was not submitted in connection with the regular annual estimates of the expenses of the War Department for the fiscal year. The bill providing money to cover such expenses has already passed both Houses of Congress and it is therefore too late to get into that bill an item providing funds for the construction and equipment of a new library building. It may be possible, however, to procure the insertion of such an item into some deficiency appropriation bill or some other appropriation bill during the present session of Congress. If that is not done, the making of plans looking toward the construction of a new building will be delayed by as much as a year. Active and forceful work should therefore be inaugurated at once, and

WHEREAS, That Act carried with it, however, no appropriation. The next step, therefore, is for the Secretary of War to submit to Congress a request for the necessary appropriation, approved by the Director of the Budget. Therefore be it

Resolved, That the House of Delegates of the Missouri State

Medical Association hereby voice a strong demand for the construction of a new building for the Army Medical Library and Museum and petition the respective members of Congress from Missouri to support an adequate appropriation, and be it further

Resolved, That the Secretary be instructed to forward copies of this resolution to our respective members of our National Congress.

On motion, duly seconded, this resolution was adopted.

Dr. Joseph C. Peden, St. Louis, Chairman, reported for the Reference Committee on Medical Education and Public Welfare as follows:

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND PUBLIC WELFARE

The questions on the cancer clinics submitted by the Marion-Ralls County Medical Society have been answered by the paper presented by Dr. Fred. J. Taussig, St. Louis, and by Dr. Dudley A. Robnett, Columbia, in his discussion of the paper by Dr. Paul F. Cole, Springfield, and in reports of the Committee on Cancer published in *THE JOURNAL*.

The Committee suggests that the resolution offered by the Committee on Maternal Welfare and Infant Care concerning a prenatal blood test bill, since the legislature will not meet again until 1941 and the Association will convene before that time, be referred to the Committee on Public Policy and the Committee on Study of the Medical Practice Act for study and report at the next meeting of the House of Delegates.

On motion, duly seconded, the report was adopted.

On motion of Dr. Morris B. Simpson, Kansas City, duly seconded, the House of Delegates tendered a vote of thanks to the Clay County Medical Society for its generous hospitality during the Annual Session.

On motion of Dr. Curtis H. Lohr, St. Louis, duly seconded, the House of Delegates tendered a vote of thanks to the Committee on Scientific Work for the program of the Session.

On motion the House of Delegates adjourned *sine die*.

MEETING OF THE COUNCIL

Elms Hotel

Sunday, April 9, 1939—Special Session

The Council met in special session on Sunday evening, April 9, at the Elms Hotel, Excelsior Springs.

On motion, the Council designated Dr. C. A. W. Zimmermann, Cape Girardeau, Vice President, to preside at the 82nd Annual Session in the absence of Dr. B. W. Hays, Jackson, President, who was unable to attend the Annual Session because of illness.

Dr. Herbert L. Mantz, Kansas City, Chairman of the special committee appointed by the Council to study amendments to the Constitution and By-Laws, reported with the recommendation that the proposed amendments introduced at the 1938 Annual Session be approved with the exception of the amendment to Section 1, Chapter IV of the By-Laws. The Council unanimously approved the other amendments with several suggested changes.

The Council approved the plan of tendering a dinner in honor of Past Presidents of the Association at the 1940 Annual Session and inviting the officers of the component county medical societies to participate.

The Council, upon motion, adjourned.

Monday, April 10, 1939—First Session

The first meeting of the Council convened at a luncheon meeting at noon, April 10, 1939, the Chairman, Dr. Curtis H. Lohr, St. Louis, presiding.

Roll call showed the following Councilors present:

1st District.....A. S. Bristow, Princeton

2nd District.....H. B. Goodrich, Hannibal

3rd District.....Curtis H. Lohr, St. Louis
4th District.....R. B. Denny, Creve Coeur
5th District.....W. A. Bloom, Fayette
6th District.....A. J. Campbell, Sedalia
7th District.....E. P. Heller, Kansas City
8th District.....H. L. Kerr, Crane
9th District.....E. C. Bohrer, West Plains
President-Elect....James R. McVay, Kansas City
Acting
President.....C. A. W. Zimmermann,
Cape Girardeau

The minutes of the meeting of April 9 were approved.

Dr. Curtis H. Lohr, St. Louis, Chairman, appointed the Auditing Committee as follows: Drs. W. A. Bloom, Fayette; E. C. Bohrer, West Plains; H. B. Goodrich, Hannibal.

On motion, duly seconded, the report of the Secretary was referred to the Auditing Committee.

On motion the report of the Treasurer was referred to the Auditing Committee.

On motion the report of the Committee on Publication was approved.

On motion the message of the President was approved.

A resolution regarding the practice of medicine by unlicensed practitioners, approved by the Executive Council of the Jackson County Medical Society, was submitted by Dr. E. P. Heller and ordered referred to the Reference Committee on Resolutions.

A letter from the American Medical Association requesting the Missouri State Medical Association to adopt a resolution voicing a strong demand for an appropriation for the construction of a new building for the Army Medical Library and Museum in Washington, D. C., and to appoint a committee to follow this matter through until an appropriation has been made by Congress was ordered referred to the Reference Committee on Resolutions.

The following candidates for Affiliate Fellowship in the American Medical Association were approved: Drs. Bransford Lewis, Carl Barck, Louis C. Boisliniere, Given Campbell, Joseph J. Link, Ellsworth S. Smith, Joseph W. Charles, Edward J. Goodwin, William C. Mardorf, R. Brent Murphy, St. Louis; D. Walton Hall, Harrison S. Hickok, John L. Myers, Francis E. Wilhelm, Walter P. Grimes, Luther T. Hollis, George H. Hoxie, Ward H. Leonard, James Middleton, Frank C. Neff, George B. Norberg, Ernest F. Robinson, G. Wilse Robinson, Leon Rosenwald, William K. Trimble, David L. Shumate, Scott P. Child, Kansas City; Emmett F. Cook, Thomas J. Redmond, St. Joseph; Josiah G. Moore, Mexico; Jacob Breid, Spickard; Royal L. Garner, Milan.

A letter from the Linn County Medical Society regarding the State Health District was referred to the Councilor of that District.

Dr. H. L. Mantz, Kansas City, Chairman of the Council Committee on Study of Constitution and By-Laws, presented the following report:

Report of Committee

The Committee recommends that Chapter VI relating to the Council be amended by adding a new section to be known as Section 12 which shall read as follows:

Sec. 12. The Council shall be empowered to elect an Executive Secretary who need not be a member of the Missouri State Medical Association, who shall perform such duties as the Council may designate and who shall receive such salary and serve for such period and under such conditions as the Council may determine.

The Committee further recommends that Section 4 of Chapter VII relating to committees be repealed and a new section be adopted in lieu thereof to read as follows:

Sec. 4. The Committee on Publication shall consist of five members including the Editor or Acting Editor. The Committee shall be appointed by the Council annually. The Chairman shall be designated by the Council. It

shall have referred to it all reports on scientific subjects and all scientific papers and discussions heard before the Association. It shall be empowered to curtail, abstract or reject papers and discussions. It shall arrange for the publication and distribution of THE JOURNAL.

The report was accepted and the Council recommended the adoption of these amendments.

The Committee of the Council on Study of Constitution and By-Laws further reported that on advice of competent counsel, that in view of the present trend of governmental policies toward medical organizations, the Association's Constitution and By-Laws need careful study and revision. The Committee submitted a proposed Constitution and By-Laws for report and recommendation to the House of Delegates.

On motion the Council adjourned.

Wednesday, April 12, 1939—Second Meeting

The second meeting of the Council convened April 12 following the final meeting of the House of Delegates with Dr. Curtis H. Lohr, St. Louis, presiding.

Roll call showed the following Councilors present:

- 1st District.....A. S. Bristow, Princeton
- 2nd District.....H. B. Goodrich, Hannibal
- 3rd District.....Curtis H. Lohr, St. Louis
- 4th District.....R. B. Denny, Creve Coeur
- 5th District.....William A. Bloom, Fayette
- 6th District.....A. J. Campbell, Sedalia
- 7th District.....E. P. Heller, Kansas City
- 8th District.....H. L. Kerr, Crane
- 9th District.....E. C. Bohrer, West Plains
- 10th District.....E. J. Nienstedt, Sikeston

The election of officers for the year resulted as follows: Treasurer, Dr. R. L. Thompson, St. Louis; Executive Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Chairman of the Council, Dr. Curtis H. Lohr, St. Louis; Vice Chairman, Dr. E. P. Heller, Kansas City; Secretary of the Council, Mr. E. H. Bartelsmeyer, St. Louis.

The General Committee on Arrangements for the 1940 Annual Session was appointed as follows: Dr. H. L. Kerr, Crane, Chairman; Dr. E. P. Heller, Kansas City, and Dr. A. J. Campbell, Sedalia.

The Committee on Scientific Work was authorized to secure the best talent possible for the 1940 program, the number of guests to be left to the Committee with the suggestion that eight guests be the maximum number.

The Secretary was instructed to send a copy of the material on refugees to each member of the Council for study and action at the next meeting.

On motion the Council adjourned *sine die*.

COMMITTEE ON MATERNAL WELFARE DINNER MEETING

Monday, April 10, 1939—Elms Hotel

The Committee on Maternal Welfare held a dinner meeting at the Elms Hotel, Excelsior Springs, April 10, the Chairman of the Committee, Dr. Ralph R. Wilson, Kansas City, presiding.

Dr. J. C. Litzenberg, Minneapolis, was a guest of the Committee and discussed maternal deaths reported at the meeting.

Taking part in reports and discussions were Drs. J. C. Litzenberg, Minneapolis; Ralph R. Wilson, Kansas City; Harry F. Parker, Jefferson City; E. Lee Dorsett, St. Louis; Rollin H. Smith, Rich Hill; R. Ned White, Springfield; W. F. Francka, Hannibal; Otto H. Schwarz, St. Louis; H. B. Goodrich, Hannibal; Loren E. Egley, Maryville; A. Denton Vail, Springfield.

Dr. C. E. Burford, St. Louis, received the award for the best article on obstetrics appearing in THE JOURNAL during the year for his article on "Pyelitis of Preg-

nancy" which appeared in the March issue of THE JOURNAL.

MINUTES OF THE GENERAL MEETING

Ballroom, Elms Hotel

Monday, April 10, 1939—Afternoon Session

The scientific sessions were held in the Ballroom of the Elms Hotel, Excelsior Springs, the first convening at 1:55 p. m., with Dr. C. A. W. Zimmermann, Cape Girardeau, Vice President, in the chair. Addresses were presented as follow:

Dr. I. Mims Gage, New Orleans, "Surgery of Acute Cholecystitis." Discussed by Dr. E. Lec Miller, Kansas City.

Dr. Alexis F. Hartmann, St. Louis, "Clinical Use of Sulfanilamide and Its Derivatives."

Dr. J. C. Litzenberg, Minneapolis, "The Conduct of Normal Labor and Its Abuses."

Dr. W. Merritt Ketcham, Kansas City, "The Male Sex Hormone."

Tuesday, April 11, 1939—Morning Session

Dr. B. W. Hays, Jackson, Address of the President, "Shall Medicine Remain Independent?" (Read by the Secretary.)

Dr. James R. McVay, Kansas City, Address of the President-Elect, "The Missouri State Medical Association, Past, Present and Future."

Drs. John J. Boucek, Charles E. Gerson and Andrew C. Henske, St. Louis, "Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis." Discussed by Dr. H. L. Mantz, Kansas City.

Dr. Warren H. Cole, Chicago, "Surgical Aspects of Peptic Ulcer."

Dr. O. P. Hampton, St. Louis, "Internal Fixation of Fractures of the Neck of the Femur." Discussed by Drs. S. A. Grantham, Joplin, and Robert M. Schaffler, Kansas City.

Dr. I. Mims Gage, New Orleans, "Acute Trauma of the Abdominal Viscera (Subcutaneous Injury of the Abdomen)."

Dr. G. O. Broun, St. Louis, "Clinical Studies of Vitamin K." (Paper read by Dr. Kenneth Andrews, St. Louis.)

Tuesday, April 11, 1939—Noon Session

Round Table Discussion, Club Room, Elms Hotel

Dr. I. Mims Gage, New Orleans, "Surgery."

Dr. Fred M. Smith, Iowa City, and Dr. Ralph A. Kinsella, St. Louis, "Internal Medicine."

Tuesday, April 11, 1939—Afternoon Session

Dr. Archer O'Reilly, St. Louis, "The Crippled Child in Missouri." (Read by title.)

Dr. G. Wilse Robinson, Jr., Kansas City, "The Treatment of Depressions and Melancholias."

Dr. Sumner L. Koch, Chicago, "The Worker's Hand."

Dr. Raymond O. Muether, St. Louis, "Recent Developments in the Treatment of Lobar Pneumonia."

Dr. Fred M. Smith, Iowa City, "The Diagnosis and Treatment of Coronary Thrombosis."

Dr. Drew Luten, St. Louis, "Reputed Incompatibility Between Angina Pectoris and Congested Heart Failure."

Dr. Jacob Kulowski, St. Joseph, "The Modern Approach to the Problem of Acute Hematogenous Osteomyelitis."

Wednesday, April 12, 1939—Morning Session

Dr. B. R. Kirklin, Rochester, "The Value of X-Ray Diagnosis as It Pertains to the Physician in General Practice."

Dr. William Malamud, Iowa City, "Modern Trends in the Treatment of Schizophrenia."

Dr. Evarts A. Graham, St. Louis, "Accomplishments of Modern Chest Surgery."

Dr. A. W. Adson, Rochester, "The Status of Sympathectomy for Hypertension."

Dr. Walter M. Whitaker, Quincy, "Pneumonia in Childhood."

Wednesday, April 12, 1939—Noon Session

Round Table Discussion, Club Room, Elms Hotel

Dr. Evarts A. Graham, St. Louis, "Surgery."

Dr. Walter M. Whitaker, Quincy, "Pediatrics."

Wednesday, April 12, 1939—Afternoon Session

Dr. Fred. J. Taussig, St. Louis, "The Role of the Ellis Fischel Cancer Hospital in the Control of Cancer in Missouri."

Dr. Paul F. Cole, Springfield, "Missouri Cancer Survey, 1938." Discussed by Dr. Dudley A. Robnett, Columbia.

On motion the Eighty-second Annual Session of the Missouri State Medical Association adjourned *sine die*.

REGISTRATION AT EIGHTY-SECOND ANNUAL SESSION

*Adson, A. W., Rochester, Minn.
Allee, James W., Eldon
Allee, W. Logan, Eldon
Allen, Charles H., Independence
*Anderson, K. R., St. Louis
*Anderson, R. F., Kansas City
Anthony, Francis R., Maryville
Aschman, Theodore H., Kansas City
Asher, A. Graham, Kansas City
*Ashmore, Buell L., Excelsior Springs
Aull, John, Kansas City
Austin, Charles S., Carrollton
Bailey, Fred W., St. Louis
Baird, J. Edward, Excelsior Springs
Barnes, Asa, Higginsville
Bartelsmeyer, E. H., St. Louis
*Bartleson, W. H., Kansas City
Beal, Homer A., Kansas City
Becke, William G., St. Louis
Beckemeyer, William A., Sedalia
Beckman, William, Strasburg
Bell, J. Vardiman, Kansas City
Bergmann, Victor H., Kansas City
Bickel, Vern T., Lamar
Bills, Marvin L., Kansas City
*Bloom, Charles, Kansas City
Bloom, William A., Fayette
Bloomer, Gaylord T., St. Joseph
Bohrer, Eldon C., West Plains
*Bowser, R. M., Kansas City
Bradford, Oscar F., Columbia
Braecklein, William A., Higginsville
Brainard, Benjamin F., Martin City
Brams, Jack B., Kansas City
Brasher, Ben H., Lexington
*Breckenkamp, A. W., St. Louis
Bredall, Jerome J., Perryville
Brennan, Raymond J., Chillicothe
Breuer, Robert E., Newburg
Breuer, William H., St. James
Bristow, Arthur S., Princeton

Brown, Eugene R., University City
Broyles, Watkins A., Bethany
Brumm, Lawrence W., Kansas City
Bruner, Claude R., Columbia
*Buck, R. M., St. Joseph
Buckingham, William W., Kansas City
Buhler, Victor B., Kansas City
Burford, Cyrus E., St. Louis
Burke, John P., Jr., California
Butler, Fred E., Salem
Byland, Benjamin F., Burlington Junction
Byrne, John I., St. Joseph
Cady, Lee D., St. Louis
Caldwell, John K., Kansas City
Callaway, Luther M., Kansas City
Calvert, Lewis C., Weston
Campbell, Albert J., Sedalia
*Campbell, D. A., Orrick
Capell, Clarence S., Kansas City
Carle, Horace W., St. Joseph
Carlson, Hjalmar E., Kansas City
Carmichael, Francis A., St. Joseph
Casebolt, Milton B., Kansas City
Castles, John E., Kansas City
Chambers, James Q., Jr., Kansas City
Chapman, James W., Jefferson City
Clark, Henry M., Platte City
Clark, Hiram J., Excelsior Springs
*Clark, James, Kansas City
Clark, Samuel M., Halltown
Clasen, Arthur C., Kansas City
Cline, Edward W., Lamar
Coffey, Ralph R., Kansas City
Cohen, Harry K., Kansas City
Cole, Paul F., Springfield
*Cole, Warren H., Chicago
Colson, John R., Schell City
Comboy, Lawrence J., Independence
Conley, Dudley S., Columbia
Connell, Evan S., Kansas City
Conover, Charles C., Kansas City
Cook, Emmett F., St. Joseph
Cook, Thomas F., Richmond
Cooper, Raymond G., St. Charles

Cooper, R. Lee, Warrensburg
*Corson, H. T., Chicago
Coughlin, William T., St. Louis
Counsell, Chester M., Kansas City
Cowherd, Joseph B., Kansas City
Cramb, Arthur B., Kirksville
Craven, Young D., Excelsior Springs
Creech, Joseph C., Troy
Crews, Robert N., Fulton
Cullers, Charles H., Trenton
Curdy, Robert J., Kansas City
Cuthbertson, William M., Liberty
Danglade, James H., Kansas City
Davis, Kenneth A., Kansas City
Davis, Paul C., Moberly
Dawson, John W., Eldorado Springs
Dawson, Lerton V., Excelsior Springs
DeMaria, Peter F., Kansas City
*Denlinger, E., Kansas City
Denny, Robert B., Creve Coeur
*DeVilbiss, E. F., Kansas City
Deweese, Everett R., Kansas City
Dickson, Frank D., Kansas City
Diehr, Alvin H., St. Louis
Diekroeger, Manuel L., Marceline
*Dillan, F. E., Indianapolis, Ind.
Diveley, Rexford L., Kansas City
Dixon, J. Leonard, Kansas City
Dixon, John R., Linneus
Dolan, A. N. J., Excelsior Springs
Donaldson, Clyde O., Kansas City
*Doolin, L. R., Gallatin
Dorsett, E. Lee, St. Louis
Dowell, Dona'd M., Chillicothe
Dowell, George S., Braymer
Dowell, Horace S., Chillicothe
*Doyle, G. D., Kansas City
Dreyer, Philip, Huntsville
*Duffy, G. A., Springfield, Colo.
Dumbauld, Bunn A., Webb City
Duncan, Ralph E., Kansas City
Dyer, Clyde P., St. Louis
Dyer, David P., Sedalia
Egley, Loren E., Maryville
Elam, William T., St. Joseph
Eldridge, Charles J., Kansas City
Elliott, B. Landis, Kansas City
Elliott, James R., Kansas City
Ellis, Coburn, Sweet Springs
Ernst, Edwin C., St. Louis
Eubank, Ambrose E., Kansas City
Eubank, Dillard M., Raytown
Feierabend, Frank L., Kansas City
Ferris, Carl R., Kansas City
Ferster, William R., Kansas City
Finley, Freeman L., Overland
*Flenning, J. W., Kansas City
Fletcher, Paul F., St. Louis
Forgrave, Leon P., St. Joseph
Foster, Hal, Kansas City
Fowler, I. Charles, N. Kansas City
Franccka, W. F., Hannibal
Fredendall, George W., Lexington
Frick, J. Paul, Kansas City
Frick, William J., Oak Grove
Fuson, Levi H., St. Joseph

Fuson, William A., Trenton
*Gage, I. Mims, New Orleans, La.
Gallagher, William J., St. Louis
Ganley, William C., Kansas City
Gard, Raymond F., Independence
Gashwiler, J. Schooling, No vinger
Gay, Elmer E., Richmond
Gebhart, Oliver C., Oregon
Gempel, Paul A., Kansas City
*Gentry, Merritt L., Osceola
*Gerson, Charles E., St. Louis
Gestring, Hugh A., Kansas City
Gilkey, Harry M., Kansas City
Gilles, Clifford L., Kansas City
Gilliland, Alvin O., Cameron
Gilliland, Charles E., St. Louis
Gilliland, Oliver S., Kansas City
Glassberg, Bertrand Y., St. Louis
Glasscock, Ernest L., Kansas City
Glover, Kenneth, Mt. Vernon
Goldberg, Isadore E., Polo
Goldman, Max, Kansas City
Goodrich, Howard B., Hannibal
Goodson, William H., Liberty
*Gordon, Ole, Kansas City
Grabske, Charles F., Independence
Grace, Haynie M., Chillicothe
Grace, John F., Excelsior Springs
Graham, Evarts A., St. Louis
Grantham, Samuel A., Joplin
Green, John R., Independence
Greenberg, Charles, St. Joseph
*Greene, Charles W., Columbia
Greene, Luther D., Richmond
Greene, W. Wallace, Kansas City
Grim, George E., Kirksville
Grimes, M. E., St. Joseph
Grosskreutz, Joseph A., St. Louis
Growdon, John A., Kansas City
Haley, Roy R., Brookfield
Hall, Andy, Jr., St. Louis
Hall, Oscar B., Warrensburg
Hamilton, Buford G., Kansas City
Hammond, John J., St. Louis
Hampton, Oscar P., St. Louis
Hanks, Ralf, St. Joseph
Hansen, Arthur L., Appleton City
Hardesty, Joel W., Hannibal
Hardy, John W., Sumner
Harms, Florian L., Salisbury
Harrison, J. Frank, Mexico
Hart, Pearl V., Coatsville
Hartigan, Frank X., St. Joseph
Hartmann, Alexis F., St. Louis
Hartnett, Leo J., St. Louis
Hawkins, George W., Salisbury
Hawkins, Wesley R., Glasgow
Haynes, Solon E., Kansas City
Hayward, John D., St. Louis
Heller, Edward P., Kansas City
Helman, Richard G., Kansas City
*Helsby, F. K., Kansas City
Helwig, Ferdinand C., Kansas City
Henderson, James P., Kansas City
Hendren, Glenn W., Liberty

*Visitor

- Henske, Andrew C., St. Louis
 *Heslin, A. T., Kansas City
 Hess, H. Lewis, Kansas City
 Hickey, Robert F., St. Louis
 Hines, Paul, Webster Groves
 Hoffman, Jacob S., Kansas City
 Hogue, Frank S., Kansas City
 Holbrook, Walter F., Kansas City
 Holliday, Morgan L., Fillmore
 Hook, Waller G., Kansas City
 Horne, Albert H., Steelville
 Horton, James D., Springfield
 Howard, Stanley P., Jefferson City
 *Hufnagel, C. J., Excelsior Springs
 Hughes, Shelby B., Clinton
 Humbert, Charles D., Barnard
 Hungate, Carroll P., Kansas City
 Hunt, Claude J., Kansas City
 Hunt, Paul F., Kansas City
 James, Joseph D., Springfield
 James, Luther S., Blackburn
 James, Robert M., Joplin
 Janes, Vincil B., Cameron
 Jenkins, Paul A., Lebanon
 Jennett, J. Harvey, Kansas City
 Jessell, C. Todd, Kansas City
 Johnson, Edward E., Kansas City
 Johnson, William E., Warrensburg
 Johnston, Elza L., Concordia
 Jolley, J. Frank, Mexico
 Jones, Albert E., Kansas City
 Jones, Andrew B., St. Louis
 Jones, Clifford, Kansas City
 Jones, George H., Kansas City
 Jones, J. Lawrence, Kansas City
 Kane, R. Emmet, St. Louis
 Kearney, Elmer F., Oregon
 Keith, Willis E., Kansas City
 Kendall, Guy M., Chilhowee
 Kennedy, Robert W., Marshall
 Kerr, Frank T., Monett
 Kerr, Homer L., Crane
 Kerr, Russell W., Kansas City
 Ketcham, William M., Kansas City
 Kieffer, Roland S., St. Louis
 Kimes, Ira D., Cameron
 Kinsella, Ralph A., St. Louis
 *Kirklin, B. R., Rochester, Minn.
 Kitchen, William B., Glasgow
 Klepinger, Dayton P., Kansas City
 Klinefelter, Marion L., St. Louis
 Knappenberger, George E., Kansas City
 Knight, John S., Kansas City
 Koch, Otto W., Ballwin
 *Koch, Sumner L., Chicago
 *Koerber, F. L., Kansas City
 Koon, Bernard T., Perryville
 Koppenbrink, Walter E., Higginsville
 Koritschoner, Robert, Kansas City
 Kovitz, Louis, Kansas City
 Kranson, Seymour J., Independence
 Kulowski, Jacob, St. Joseph
 Kyger, Fred B., Kansas City
 Lamar, Frederick C., Kansas City
 Langhus, Melvin O., N. Kansas City
 *Lansdowne, J. W., Independence
 Lapp, Harry C., Kansas City
 Lapp, John G., Kansas City
 Lapp, Titus S., Fulton
 *Visitor
 Lawrence, John R., Marshall
 Laws, Clarence J., Princeton
 *Lawton, A. W., Chicago
 Leitch, Cecil G., Kansas City
 LeMone, David V., Columbia
 Lilly, Terry E., Kansas City
 *Linhares, F., Kansas City
 *Litzenberg, J. C., Minneapolis
 Lockwood, Ira H., Kansas City
 *Logan, George, Kansas City
 *Logan, W. J., Chicago
 Lohr, Curtis H., St. Louis
 Long, David S., Harrisonville
 *Long, Kenneth V., St. Louis
 Lowe, Horace A., Springfield
 Lower, Mary J., Kansas City
 Lowry, Charles F., Kansas City
 Lucke, Eugene M., Hannibal
 Luedde, Philip S., St. Louis
 Lusk, Charles A., Butler
 Luten, Drew W., St. Louis
 Luter, Carter W., Butler
 Lyons, Leonard M., Pierce City
 McAlester, Andrew W., Kansas City
 McAlester, Andrew W., Jr., Kansas City
 McCallum, Francis M., Kansas City
 McCandless, Oliver H., Kansas City
 *McCarthy, Ray F., St. Louis
 McComas, Arthur R., Sturgeon
 *McConnell, Kenneth, Kansas City
 McCormick, Frank L., Moberly
 McCracken, Samuel R., Excelsior Springs
 McLean, Royal C., Kirkwood
 McLeod, John, Kansas City
 McMahon, Alphonse, St. Louis
 McMurry, Marvin C., Paris
 McPherson, Owen P., Kansas City
 McVay, James R., Kansas City
 *McVay, William, Kansas City
 Mairs, Edgar J., Trenton
 Major, Hermon S., Kansas City
 *Malamud, William, Iowa City, Iowa
 Mallette, Cyrus, Crocker
 Maltby, Burton, Liberty
 Mann, Francis W., Wellington
 Manning, David F., Marshall
 Mantz, Herbert L., Kansas City
 Maples, F. H., Marshall
 Martin, Edward W., Kansas City
 Martin, Wilfred E., Odessa
 *Martz, Del, St. Louis
 Meinershagen, C. W., Salem
 Miller, Charles W., St. Louis
 Miller, Eugene A., St. Joseph
 Miller, E. Lee, Kansas City
 Miller, Thomas F., Lamar
 Milne, Lindsay S., Kansas City
 *Mitchell, Vernon C., Kansas City
 Montgomery, James G., Kansas City
 Montgomery, John S., Milan
 Moore, Ernest M., Jr., Higginsville
 Moore, Ernest M., Sr., Higginsville
 Moore, Milton H., Dearborn
 Moore, Neil S., St. Louis
 Moore, Walter R., St. Joseph
 Mueller, Robert, St. Louis
 Muether, Raymond O., St. Louis
 *Muncey, Miss Mabel, Kansas City
 Murphy, Bernard L., Hannibal
 Musgrave, David E., Excelsior Springs
 Myers, Benj. L., Kansas City
 Myers, John L., Kansas City
 Myers, Ralph R., Kansas City
 Myers, Wilson A., Kansas City
 *Navin, James J., Excelsior Springs
 Neal, J. Park, Kansas City
 Neal, M. Pinson, Columbia
 Neff, Robert L., Joplin
 Neilson, Charles H., St. Louis
 Nelson, James M., Kansas City
 Newlon, Charles S., Kansas City
 Neinstedt, Elam J., Sikeston
 Nifong, Frank G., Columbia
 Nigro, D. M., Kansas City
 Norberg, George B., Kansas City
 Nunn, Pat Morris, Kansas City
 Ockerblad, Nelse F., Kansas City
 Oliver, Evertt A., Richland
 O'Reilly, J. Archer, St. Louis
 O'Rourke, Paul V., Kansas City
 Osborn, Arthur L., Kansas City
 Osborne, Charles D., Sedalia
 Overholser, Milton D., Columbia
 Owens, Michael J., Kansas City
 Owens, Patrick H., Kansas City
 *Pack, O. G., Kansas City
 Padgett, Earl C., Kansas City
 Pallett, Harold A., Kansas City
 Parker, Harry F., Jefferson City
 Parrish, Edward E., Memphis
 Parsons, Eugene O., Kansas City
 Pate, O. S., Orrick
 Patrick, Philip L., Marceline
 Patterson, Henry H., Brainer
 Patterson, William R., Warrensburg
 *Paul, David, Kansas City
 *Pear, Henry, Excelsior Springs
 Peden, Joseph C., St. Louis
 Pendleton, George F., Kansas City
 Perry, John M., Princeton
 Peters, Melvin L., Cameron
 Petersen, H. E., St. Joseph
 Pipkin, Garrett, Kansas City
 Pipkin, Walter D., Monroe City
 Pittam, Radford F., Kansas City
 Platt, Paul C., Kansas City
 Polk, George M., Independence
 Polsky, Morris, Kansas City
 Postlethwaite, Frank M., Kansas City
 Powell, George M., Springfield
 Powers, John A., Kansas City
 Powers, Pierce W., St. Louis
 Prather, Roy W., Excelsior Springs
 Putman, G. B., Marceline
 Quistgard, Paul C., Kansas City
 Raab, F. Henry, Kansas City
 *Read, P. W., Kansas City
 Redman, Spence, Platte City
 Reichman, John J., Hannibal
 Rice, Earl R., St. Louis
 Ridge, Frank I., Kansas City
 Rising, Dean S., Kansas City
 Robbins, Martin V., Peculiar
 Roberson, John H., Hale
 Roberts, Harold M., Kansas City
 Robertson, J. Archie, Kansas City
 Robichaux, Eugene B., Excelsior Springs
 Robichaux, Eugene C., Excelsior Springs
 Robinson, E. Kip, Kansas City
 Robinson, G. Wilse, Jr., Kansas City
 Robinson, G. Wilse, Sr., Kansas City
 Robnett, Dudley A., Columbia
 *Rockwell, J. F., Kansas City
 Roselle, Thomas A., Palmyra
 Roy, Gustave A., Kansas City
 *Rueggsegger, F. M., Excelsior Springs
 Russell, D. R., Kansas City
 Ryan, John H., St. Joseph
 Ryland, C. T., Lexington
 Sale, Onal A., Neosho
 Schaulffler, Robert M., Kansas City
 Scherman, Victor E., St. Louis
 Schneiderman, Henry, Kansas City
 Schofield, Linn J., Warrensburg
 Schooley, Reinick C., Odessa
 Schorer, Edwin H., Kansas City
 Schudde, Otto N., St. Louis
 Schuhmacher, N. R., Liberty
 Schutz, Richard B., Kansas City
 Seibel, Marshall G., St. Louis
 Senor, Samuel E., St. Joseph
 Settle, Emmett B., Rockport
 Shapiro, Lazare M., Kansas City
 Sheetz, Robert, Orrick
 Shelton, Edward C., Eldon
 Short, Ulysses S., St. Louis
 Shouse, Edwin, Lawson
 Simon, Jerome I., St. Louis
 Simpson, Morris B., Kansas City
 Singleton, J. Milton, Kansas City
 Skoog, Andrew L., Kansas City
 *Smith, A. B., Kansas City
 Smith, Edward S., Kirksville
 *Smith, Fred M., Iowa City, Iowa
 Smith, James E., Rolla
 Smith, Rollin H., Rich Hill
 *Smith, Ted., Kansas City
 Smith, Wallis, Springfield
 Snider, Samuel H., Kansas City
 Spalding, Wilbur B., Plattsburg
 Spelman, A. E., Smithville
 Stamey, James T., St. Joseph
 Stauffer, Harry B., Jefferson City
 Steckman, Phillip M., Plattsburg
 Stevens, Roy U., Kansas City
 Stewart, William J., Columbia
 Stockwell, A. Lloyd, Kansas City
 Stowers, James E., Kansas City
 Stricker, Emil A., St. James
 Stryker, Garold V., St. Louis
 Sullivan, William J., Kirksville
 Talbott, Hudson, St. Louis
 Tarson, Solomon S., Kansas City
 Tate, Prentiss S., St. Joseph
 Tatum, Harry E., Brunswick
 Taussig, Frederick J., St. Louis
 Teachenor, Frank R., Kansas City
 Teall, Ray E., Kansas City
 Thiele, George H., Kansas City
 Thomason, Henry E., Kansas City
 Thompson, Emma A. B., Breckenridge
 Thompson, F. Gregg, Jr., St. Joseph
 Thompson, Robert V., Jamesport
 Thornburgh, Albert H., West Plains

Trimble, William K., Kansas City
Triplett, Jacob S., Harrisonville
Twyman, Elmer D., Kansas City
Twyman, Tom, Independence
Vail, A. Denton, Springfield
Valentine, Herbert S., Kansas City
Vanorden, Herbert F., Kansas City
Vinyard, Robert, Springfield
Virden, C. Edgar, Kansas City
Vitale, Nicholas S., St. Louis
Vohs, Carl F., St. Louis
Wakefield, Franklin, Jr., Kansas City
Walker, Grant D., Eldon
Wallace, Charles H., St. Joseph
Walton, Franklin E., St. Louis
Washburn, J. Loren, Versailles
Waters, E. B., Kirkwood
Welch, Albert S., Kansas City
Wells, Aubrey H., Boonville
Wellstead, R. L., Columbia

Wensley, John E., Harrisonville
West, William M., Monett
Weyerich, Leon F., Cameron
*Whitaker, Walter M., Quincy, Ill.
White, Edwin C., Kansas City
White, Orville, St. Louis
White, R. Ned, Springfield
Wilcox, Claude V., St. Louis
Williams, Delon A., Kansas City
Williams, John W., Springfield
Wilson, Ralph R., Kansas City
Withers, Orval R., Kansas City
Wolfe, Sharkey, Kansas City
*Wolff, S. J., St. Louis
Wood, V. Visscher, St. Louis
Woolsey, Ross A., St. Louis
Wortley, Cabray, St. Joseph
Wray, R. B., Nevada
Wyatt, Charles H., Kansas City
*Wyly, W. J., Kansas City
Wysong, William L., Liberty
Yancey, Daniel L., Springfield
Yoskit, Harry, Festus
Zimmermann, C. A. W., Cape Girardeau

Total, 533

*Visitor

FIRST COUNCILOR DISTRICT

A. S. BRISTOW, PRINCETON, COUNCILOR

Atchison County Medical Society

The Atchison County Medical Society met at Tarkio on May 12.

The following officers were elected: President, Dr. Charles H. Flynn, Tarkio; vice president, Dr. Charles T. Settle, Rockport; secretary-treasurer, Dr. Emmett B. Settle, Rockport.

EMMETT B. SETTLE, M.D., Secretary.

Buchanan County Medical Society

A special session of the Buchanan County Medical Society to discuss Senate Bill No. 1620 was held on March 22 with nineteen members present, Dr. F. X. Hartigan presiding.

After discussion of the bill it was moved by Dr. H. W. Carle that a committee be appointed to write appropriate resolutions condemning Senate Bill No. 1620, that the resolutions be signed by every member of the Buchanan County Medical Society and that a copy be sent to the United States Senators, Harry S. Truman and Bennett C. Clark, and the Representative, Richard M. Duncan.

It was moved by Dr. W. T. Elam and seconded by Dr. J. T. Stamey to amend the motion as follows: That the committee make copies and send to all county Societies in the First District, outlining what the Society had done and urge them to do the same. The amendment was adopted.

The motion as amended was voted upon and passed. Dr. Hartigan appointed Drs. W. T. Elam, H. W. Carle and A. B. McGlothlan on this committee.

Meeting of March 28

A joint meeting of the Buchanan County Medical Society and the St. Joseph Clinical Society was called to order by the president, Dr. F. X. Hartigan, in the Crystal Room of the Hotel Robidoux following a 6 o'clock banquet.

Dr. Heyworth N. Sanford, Associate Professor of Pediatrics, Rush Medical School, Chicago, spoke on "Some Observations on Disturbances of Blood Coagulation."

Dr. Ralph A. Kinsella, Professor of Medicine, St. Louis University School of Medicine, St. Louis, spoke.

SIXTH COUNCILOR DISTRICT

A. J. CAMPBELL, SEDALIA, COUNCILOR

Lafayette County Medical Society

The Lafayette County Medical Society met in Odessa on May 30 at 8:00 p. m.

Dr. George H. Thiele, Kansas City, spoke on "The Relationship of Rectal Disease to General Health," illustrating his talk with lantern slides. Following a general discussion Dr. Thiele spoke briefly on "Coccygodynia, Its Diagnosis and Treatment."

Dr. W. E. Martin, Odessa, presented a case history from his practice on dermatomyositis.

After a business session refreshments were served at a cafe.

The Woman's Auxiliary met at the home of Dr. and Mrs. R. C. Schooley, Odessa. Mrs. George H. Thiele, Kansas City, was a guest of the Auxiliary.

E. S. WALLACE, M.D., Reporter.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society met on May 8 at the Colonial Tavern, Cape Girardeau, with Dr. J. H. Cochran, Cape Girardeau, presiding.

Members present were Drs. J. H. Cochran, H. L. Cunningham, William F. Oehler, P. B. Nussbaum, A. M. Murphy, C. T. Herbert, M. H. Shelby and D. B. Elrod, Cape Girardeau; E. R. Schoen and A. M. Estes, Jackson.

The secretary read reports of the meeting of presidents and secretaries at Jefferson City and of the Annual Session at Excelsior Springs.

C. A. W. ZIMMERMANN, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

18th Annual Meeting, New York

President, Mrs. Rollo K. Packard, Chicago.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

16th Annual Meeting, Joplin

President, Mrs. Paul F. Cole, Springfield.

President-Elect, Mrs. Stanley P. Howard, Jefferson City.

PRESIDENT'S REPORT

With the completion of fifteen years of activity as a state organization with national affiliation, Missouri offers the following accounting for the year, 1938-1939:

Membership dues were received from twenty of the twenty-one listed component auxiliaries although only eighteen carried on the state program. Due to the short year, membership fell from last year's high mark of 992 to 795, an unexpected loss of over 200 members being sustained in the St. Louis City Auxiliary because of repeated changes in their fiscal year. Hope soared high that we might attain our goal of 1000 members for the national convention when fifteen auxiliaries out of the twenty reported increases in membership. This is assurance that the privileges of fellowship and service which membership affords are sought eagerly by our

Presented to the Woman's Auxiliary of the American Medical Association, St. Louis, May 17.

eligible women even though present conditions have entailed many limitations.

The officers of the Council of the Missouri State Medical Association volunteered to present the need for more county auxiliaries to the various Council members, who in turn were to take the message to their respective districts. This approach to new groups through the Association seems to be the proper channel yet, despite the arousing of interest in certain quarters which may have fulfillment later, no new organization took place.

The Missouri State Medical Association for the first time made an appropriation of \$50 for its auxiliary for aid in our essay contest expense and the annual state meeting. While the amount itself was no small help to a meager budget, the acknowledgment that went with the gift of their approval and belief in our objectives was a greater contribution to our zeal. The appointment of a helpful and interested advisor and the continuous cooperation from the office of the Association was conclusive evidence that we were a welcome auxiliary.

We stood by trying to inform ourselves for a day when we might be called for active service in legislative matters.

As stimulus to our educational program, two words of Dr. A. T. McCormack from an address made last June in San Francisco, were chosen as a slogan, "Organized Intelligence." This slogan and the plan of the study groups caught the imagination of our women to the extent that in addition to following the programs provided at the regular meetings, 498 women in their leisure read at least five articles of medical significance. The study program under title of "Highlights in the House of Medicine for 1938-1939" outlined eight suggestions for monthly meetings of pertinent interest to that particular month.

The essay contest on "Highway Hazards" was the seventh annual contest and was made state-wide this year for the first time. Much valuable assistance was received from the Iowa State Auxiliary where the same subject was used last year. Rules, outline and suggested source material was mailed to 1000 high schools throughout the state. High schools in thirty-five towns participated, the best four from each school being admissible. Prizes were awarded to the amount of \$60. We recommend heartily this phase of lay health education for its compensating returns on a comparatively small investment. Voluntary contributions from twelve counties totaled \$93.50, and the expense of the contest was only \$89.29, including the prizes.

The second and more extensive plan of lay health education was presented through fifty-two meetings open to the public. When men of prominence such as Dr. W. W. Bauer were the speakers, several presentations of the same subject were made the same day as in Springfield where Dr. Bauer addressed three groups with a total attendance of 2085. Estimated attendance at all public relation meetings was over 9000.

Hygeia promotion approached the high mark of last year with 640 subscriptions. Jackson County Auxiliary (Kansas City) secured 317 of this total. This number was the result of personal solicitation of individual subscriptions, there being no gift or fund allocated for subscriptions. Buchanan County (St. Joseph) with 62 members secured 140, more than double their quota, while Cass County with 15 members secured four times their quota with 69. As a consequence, a letter was sent to Mr. F. V. Cargill, circulation manager for *Hygeia*, at the request of the voting body of the State Auxiliary in convention assembled, April 12, requesting extension of *Hygeia* contest so as to include subscriptions placed in the schools.

Among specialized activities of the different counties have been such projects as the creating of a library endowment fund by the Jackson County Auxiliary for

the Society, a benefit bridge by the St. Louis City Auxiliary with \$379.24 proceeds to be used for entertainment during the present American Medical Association session. Another group of twenty-two sponsored the Curtis Publishing Company and netted \$35 for their philanthropic work and support of the state essay contest. Two rummage sales were successful, the objectives being *Hygeia* subscriptions for 1939-1940, charity work at Christmas time and essay contributions.

The Missouri State Auxiliary submits for the exhibit committee of the National Convention this year a most unique and original book prepared with unstinted pains and talent by our state archives chairman, Mrs. Marvin L. Bills, Kansas City. Under title of the "Three Little Pigs and How They Did It," is told the story of our state's activities during the year. Through the humorous characters of Susie, Jessie and Arlene Pig are portrayed ourselves in action and helpful suggestions are to be found in the catchy jingles.

Enthusiasm, cooperation and the desire for intelligent guidance was manifested by the excellent attendance during the year at the scheduled state and national business meetings. Many besides our ten assigned delegates attended the convention sessions last June in San Francisco and brought home their inspiration. Forty-three board members and fourteen guests attended the fall board meeting, September 20, at Columbia. Registration was 148 for the fifteenth annual state meeting at Excelsior Springs in April. The "Bring-Your-Husband" Dinner with 350 present to hear Dr. R. Emmet Kane, St. Louis, speak on "The Physician and the State" was a memorable occasion. The annual business meeting was an inspiration with 130 in attendance. The culmination of a most successful and stimulating meeting was the crystal anniversary luncheon, honoring our past presidents and closing the convention. On that occasion we were "pleased to look forward, pleased to look behind, counting each birthday with grateful mind." Ten of the fifteen presidents were present and spoke briefly, the other five sending messages. Dr. James R. McVay, Kansas City, President of the State Medical Association, addressed us on "Looking Forward With the Missouri State Medical Association," and our advisor outlined three specific avenues of activity which would definitely aid our parent organization.

Thus, we closed another chapter in Missouri State Medical Auxiliary history, happy in the progress of the past yet realizing that the mill will not grind with water that is past. Therefore, the joys of accomplishment and work well done open anew to each administration and for the one about to be Missouri pledges her wholehearted endeavor for 1939-1940. We are proud to have served as the hostess state to the national convention for the second time in three years, knowing that through this expanded service we ourselves were blessed and grew.

MRS. HERBERT L. MANTZ, President.

BOOK REVIEWS

CLINICAL GASTROENTEROLOGY. By Horace Wendell Soper, M.D., F.A.C.P., St. Louis, Missouri. With 212 Illustrations. St. Louis: The C. V. Mosby Company. 1939. Price \$6.00.

Gastroenterology has made rapid strides during the last two decades. During this period Soper and his associates, particularly the late R. Walter Mills, made important original contributions to this subject. In this monograph the author crystallizes the clinical experience of the Soper-Mills Clinic over a period of some twenty-five years, presenting the methods of diagnosis and treatment that, in his opinion, have produced the best clinical results.

The author, a rugged individualist, does not always in this book follow conventional medical trends but draws his own conclusions from his vast clinical experience. For instance, the reader may not agree with the author as to the case against "pasteurized milk." However, he will find the chapters on the esophagus and colon particularly instructive.

This little book should prove interesting and valuable to the internist, surgeon, roentgenologist and general practitioner alike, and is a valuable addition to the library of any medical man. F. D. G.

THE FUNDAMENTALS OF INTERNAL MEDICINE. By Wallace Mason Yater, A.B., M.D., M.S. (in Med.), Professor of Medicine and Director of the Department of Medicine, Georgetown University School of Medicine, etc. New York, London: D. Appleton-Century Company, Inc. 1938. Price \$9.00.

Time and the accumulated experience of a host of practitioners serve better to evaluate the usefulness of a new volume concerned with the general subject of medicine than the opinion of a single reviewer. In some respects this volume constitutes a distinct departure from the historic type of medical textbook. This alone should recommend it. In general the author considers manifestations of the disease as alterations in the physiology of the body. His whole approach is from the point of view of altered function rather than from the point of view of altered anatomy (pathology). This type of presentation is not without a historical tradition and it appears eminently suited to meet the demands of normal practice.

On the other hand, directions for therapeutics are not succinctly attached to each of the pathologic entities. The reader must search for them several pages later. At the risk of repetition it might have been better to have included therapeutic directions with each pathologic or physiologic entity or to refer to a specific page containing them.

The volume seems to have more than a reasonable number of typographical errors. There are numerous excellent tables of differential diagnosis but more illustrations might prove useful. The index is inadequate and deserves thorough revision in any forthcoming edition. Subsequent editions are highly desirable for the "Fundamentals" will prove eminently serviceable to practitioner as well as student. B. Y. G.

ROSE AND CARLESS MANUAL OF SURGERY. American (Fifteenth Edition. Edited by Wm. T. Coughlin, B.S., M.D., F.A.C.S., Professor of Surgery and Director of the Department of Surgery, St. Louis University School of Medicine, etc.; From the Fifteenth English Edition by Cecil P. G. Wakeley, D.Sc. Lond., F.R.C.S. Eng., F.R.S. Edin., Senior Surgeon, King's College Hospital, England, etc.; and John B. Hunter, M.C., M.Chir.Cantab., F.R.C.S. Eng., Surgeon, King's College Hospital, England. Baltimore: William Wood and Company. 1937.

Having spent considerable time in reading the 15th edition of Rose and Carless "Manual of Surgery" I can now understand and appreciate the justification for its appearance.

Dr. Coughlin states that students and general practitioners require a reliable textbook in which the necessary information is presented in a clear, concise, easily readable and readily assimilable manner. This book is such and it is surprising how much real information has been printed in the 1500 pages.

I was greatly impressed with the chapter on obstruction for in a few brief pages all the essential points of interest relative to the causes, symptoms and treatment of this condition were presented.

As this edition has been brought up to the present

and covers all subjects pertaining to surgery in such a simple and thoroughly understandable manner, I am glad to have had the opportunity of reviewing it.

W. H.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A complete dictionary of the terms used in medicine, surgery, dentistry, pharmacy, chemistry, nursing, veterinary science, biology, medical biography, etc., with the pronunciation, derivation, and definition. By W. A. Newman Dorland, A.M., M.D., F.A.C.S. Eighteenth edition, revised and enlarged with 942 illustrations, including 283 portraits. With the collaboration of E. C. L. Miller, M.D. Philadelphia and London: W. B. Saunders Company. 1938.

Dorland's "The American Illustrated Medical Dictionary," eighteenth edition, is of the same high standard of previous editions. Each edition has included many additional terms as they have appeared in medical literature and in this edition 3000 new words have been defined, increasing the text by thirty-four pages. The largest number of additions are in the fields of endocrinology, immunology, pathology and biopsychology. More than a hundred new tests are defined. Brief biographical notes on distinguished investigators add materially to the value of the volume. The American Medical Association's editorial department cooperates in the editing of this dictionary and choice of terms conform with the style book of the American Medical Association, thus making it of special value to the physician interested in producing medical literature.

THE LARYNX AND ITS DISEASES. By Chevalier Jackson, M.D., ScD., LL.D., F.A.C.S., Professor of Bronchoscopy and Esophagoscopy, Temple University, Philadelphia, and Chevalier L. Jackson, A.B., M.D., M.Sc., (Med.), F.A.C.S., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University, Philadelphia. With 221 illustrations, including eleven plates in color. Philadelphia and London: W. B. Saunders Company. 1937. Price \$8.00.

This book is simply written and easily read. It discusses in sufficient detail the anatomy and physiology of the larynx, the general laryngeal diseases and anomalies. In addition it includes excellent discussions of tumors, injuries and inflammations of the larynx. The book is well indexed and the chapters well divided. The illustrations which add much to the value of the book are taken largely from the author's own experience. The book is valuable for student or practitioner.

S. S. B.

DISEASES OF THE EAR, NOSE AND THROAT. By Francis L. Lederer, B.Sc., M.D., F.A.C.S., Professor and Head of the Department of Laryngology, Rhinology and Otology, University of Illinois College of Medicine. Illustrated with nearly 500 halftone and line engravings, mostly original, and sixteen full-page color plates. Philadelphia: F. A. Davis Company. 1938. Price \$10.00.

Logically organized, extensively illustrated and tersely phrased "Diseases of the Ear, Nose and Throat" well fulfills Lederer's desire to produce a book designed to meet the needs of students, general practitioners, teachers and specialists. Essential material is not sacrificed but nonessential material has little space in the volume. No bibliography is used and probably has no place in a book written as compactly as this one.

The book is well divided into "Diseases of the Ear," "Diseases of the Nose and Sinuses," "Diseases of the Pharynx," "Diseases of the Larynx, Trachea, Bronchi and Esophagus" and "Correlated Considerations." Each

division is divided into chapters in a way that makes specific material easily available. The volume is extensively and well illustrated, many of the illustrations being in color which in many instances adds to their value. The author has his preferred procedures but does not omit descriptions of other procedures.

For the practitioner the book offers an excellent review of anatomy and physiology and in addition much material for study. S. S. B.

SURGICAL DISEASES OF THE MOUTH AND JAWS. By Earl Calvin Padgett, B.S., M.D., F.A.C.S., Associate Professor of Clinical Surgery, University of Kansas School of Medicine, Kansas City, Kansas; Associate Professor of Oral Surgery, Kansas City Western Dental College, Kansas City, Missouri. With 334 illustrations. Philadelphia and London: W. B. Saunders Company. Price \$10.00.

This book was designed to serve the medical student, the dental student, the practicing dentist and physician and the surgeon. It is practical in its application, providing a guide in the management of surgical diseases of the mouth and jaws. Anatomic considerations, methods of diagnosis and examination and general surgical principles are thoroughly covered. Diseases and conditions of frequent occurrence receive the greatest stress, the clinical features being especially comprehensive. Treatment includes the technic of nonsurgical as well as surgical. Plastic surgery, malignant conditions of the bone and soft tissue and radium and roentgen therapy are well discussed. The author gives the scheme which he has followed in plan of material as (1) Wounds and injuries of (a) soft tissues, (b) hard tissues. (2) Inflammations and unclassified diseases. (3) Acquired malformations. (4) Congenital malformations. (5) Tumors of the soft tissues, (a) benign, (b) malignant. (6) Restoration of deformities.

The book well fulfills its purpose of a textbook for the student and a manual for the practitioner. S. S. B.

INTERNATIONAL CLINICS. A Quarterly of illustrated clinical lectures and especially prepared original articles. By leading members of the Medical Profession throughout the world. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Maryland. Volume II. Forty-Seventh Series. Philadelphia, Montreal, London: J. P. Lippincott Company. 1937.

A number of interesting articles are presented under five sections: Infectious Diseases, Abdominal Diseases, Diseases of the Blood, Diagnosis, and Treatment and Recent Progress in Obstetrics and Surgery.

The section on infectious diseases includes an article illustrating the non-existence of syphilis as a predisposing factor in acute bacterial endocarditis emphasizing that whenever the two diseases exist together it is coincidental. In the next article three unusual and interesting cases illustrate how simple and also how difficult the diagnosis of subacute bacterial endocarditis can be. The article on rheumatic fever points out that the vitamin C concentration in blood plasma is lowered in this disease. Actinomycosis of the central nervous system is said, in the next article, to have no therapy and the condition is always fatal.

Under abdominal diseases an excellent review on the many causes of pain in the abdomen, types of pain and tricks in differentiating abdominal pains is presented. An article on chronic appendicitis, including its morbidity, mortality, classification, causes and more thorough observation and care, follows. Clinical steps are shown for the diagnosis in suspected cases of cancer of the stomach.

Discussion of diseases of the blood relates varied and interesting phenomena about the problem of gastric se-

cretion in pernicious anemia. In hemolytic jaundice, splenectomy is the recommended treatment.

A paper emphasizing the value of eye examinations in general medical examinations is the first discussion under diagnosis. Two very interesting cases of atypical forms of amebic dysentery are given. Another article shows and discusses diseases in which club fingers and hypertrophic pulmonary osteoarthropathy occur.

In treatment the importance of care of the breast and nipple is stressed. Also the indications for splenectomy are given in another article. P. M.

PRINCIPLES OF HEMATOLOGY With 100 Illustrative Cases, and 155 Illustrations Including 168 Original Photomicrographs and 95 Original Charts and Drawings. By Russell L. Haden, M.A., M.D., Chief of the Medical Division of the Cleveland Clinic, Cleveland, Ohio; Formerly Professor of Experimental Medicine in the University of Kansas School of Medicine, Kansas City, Kansas. Philadelphia: Lea & Febiger. 1939. Price \$4.50.

Dr. Haden has given in this book of 340 reading pages an excellent review of modern hematology. He has reduced the subject to its simplest terms and yet has not neglected any of the important points. The book is an excellent bird's-eye view, one might say, of modern hematology and definitely will be of great use to the average student and physician. His review of the development of the hematopoietic system and blood formation is exceedingly well done. His description of the erythrocyte, together with the figures illustrative of the text, are quite original and will be found of great use. The modern theories of anemia are clearly discussed. Leukocytes are fully described. No procedures of a complicated nature are taken up in this book. The mechanism of abnormal bleeding and the full discussion of anemia and leukopenia are given in chapter 12, together with the treatment of pathologic bleeding in chapter 13.

The latter part of the book is devoted to cases illustrative of anemia, based upon modern methods of classification. These anemias are of macrocytic, hypochromic, mycrocytic, hemolytic, cryptic and pernicious types. Finally, cases are given illustrative of leukocytoses and leukopenias, leukemias and blood diseases in relation to splenomegaly. The last chapter discusses pathologic hemorrhage with many case histories.

Haden's book will find a definite place in the library of the clinical worker as well as the laboratory expert. His contributions to modern hematology need no special emphasis here. He is fully capable of writing an original textbook along the line just described.

R. B. H. G.

TRAUMA AND INTERNAL DISEASE. A Basis for Medical and Legal Evaluation of the Etiology—Pathology—Clinical Processes—Following Injury. By Frank W. Spicer, A.B., M.D., F.A.C.P., Forty-three illustrations. Philadelphia, London, Montreal: J. B. Lippincott Company. 1939.

"Trauma and Internal Disease" is a much needed publication. It covers a subject that is only touched on here and there. It is well written and has a great deal of material with references in a concise and readable manner.

The author presents both sides of the much debated question of trauma and its relations to disease by report of cases, quotations of publications and recognized authorities supplemented by his own summary.

In his enthusiasm the author has a tendency to lean past the center to place the origin of many ailments on trauma. There are many men with wide experience in this field who would not share his enthusiasm. I would recommend the book for its references and the summaries as one man's opinion. E. C. F.

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JUXTADIAPHRAGMATIC CATASTROPHES

THREE UNUSUAL CASES

EDWARD P. HELLER, M.D.

KANSAS CITY, MO.

Because of one or more unusual features in each of the following cases they are presented to illustrate juxtadiaphragmatic catastrophes occurring in men whose work influenced many lives. Each was rendered suddenly incapable of the slightest effort. One was a locomotive engineer who would have been out on his passenger run in ten more minutes, one a tower lever man who habitually worked alone and one a drawbridge tender who happened to be off duty when stricken but who also worked alone when on duty.

CASE REPORTS

Case 1. W. G. S., male, aged 67 years, locomotive engineer, was admitted to Research Hospital, November 29, 1935, at about 7 p. m.

History.—Shortly before train time he was discovered by a fellow worker sitting in agony, apparently trying to vomit. He was able to say "It's killing me." He had finished a heavy supper at a nearby restaurant shortly before. He was taken to the hospital after hypodermic administration of morphine sulphate gr. $\frac{1}{2}$. No relief from this or subsequent narcotics was evident. Short, agonizing respirations made speech almost impossible. He gave a history of previous gall stone colic and indigestion.

Physical Signs.—He was a well developed, somewhat obese elderly man. He appeared to be in extremis with cold, cyanotic body surface. Pulse ranged from 120 to 148 and was thready. Respirations were mere grunts and chest signs were impossible to determine on account of the noises within and without the chest. Heart sounds were not heard. Apathy developed due to narcotics but evidences of agony persisted. Board-like rigidity, especially of muscles above the level of the umbilicus, existed. There was marked tenderness over the epigastrium and right upper quadrant.

Laboratory Findings.—Urine contained a heavy trace of albumin and many fine and coarsely granular casts. The blood count (November 29) was 105 per cent Hb; red blood cells, 5,400,000, and white blood cells, 8600. Nonprotein nitrogen was 43.4; uric acid 5.20; sugar 157.4, and chlorides 5.28.

Decision to operate was reached on the basis of a diagnosis of perforated peptic ulcer or gallbladder complication and certain death without the operation. The incision was in upper right rectus. The stomach was

normal. The gallbladder and duodenum were buried in massive omental adhesions. A chronically diseased gallbladder and a stone were removed leaving a clamp on the cystic duct and the abdomen was quickly closed to forceps and drain.

Progress.—Under oxygen ether CO₂ the patient's color improved on the operating table. For twelve hours his color was maintained with oxygen CO₂ inhalations and in general no change was evident except for increasing coma and dyspnea and evident cardiac embarrassment. He died at 6 p. m. Autopsy performed twenty-four hours after admission revealed a spontaneous rupture of the esophagus just above the diaphragm with the left pleural cavity filled with fluid and food and the lung collapsed. An area of ulceration was found in the mucosa just above the site of perforation on microscopic study. At autopsy the stomach was still filled with a large amount of undigested food. Careful examination of this material and that occupying the left pleural cavity failed to disclose anything resembling a foreign body.

Coronary occlusion was considered briefly but was not adhered to after a talk by telephone with the family physician prior to operation.

Final diagnosis was based on microscopic sections and gross pathology, as follows:

1. Spontaneous rupture of the esophagus with evidence of a preexisting peptic ulcer at junction of the stomach and esophagus with perforation at the upper end.
2. Chronic calculous cholecystitis.
3. Left pleural effusion.
4. Left pulmonary atelectasis.
5. Pulmonary congestion (right lower lobe).
6. Congestion of the spleen.
7. Arteriosclerotic nephritis.
8. Multiple diverticulosis of entire large bowel.

Only forty odd cases of spontaneous rupture of the esophagus have been reported in the literature.

Case 2. J. D. G., male, aged 62 years, tower lever man, was admitted to Research Hospital October 29, 1935, at 10:30 a. m. and died at 5:40 p. m.

History.—Patient felt sick after breakfast, broke out in a profuse perspiration and had pains beneath sternum. Felt better shortly and went to work. Symptoms returned while at work at 10 a. m. but were more severe than previously. He collapsed and was removed to the hospital after morphine sulphate, gr. $\frac{1}{4}$, had been administered hypodermically.

Physical Signs.—An elderly, slightly obese man. The skin was wet and clammy. The pulse was 60, blood pressure 120/80. No enlargement of the heart, no thrill, no murmurs, some periods of arrhythmia and some accentuation of the aortic second sound. Head, neck and chest normal. Abdomen normal except for palpable liver edge at costal margin.

Laboratory Findings.—Electrocardiogram showed definite coronary occlusion. Roentgenogram of chest essentially normal. Urinalysis showed a trace of albumin and sugar, acetone and diacetic acid. Blood chemistry was within normal range in all components except sugar which was 239.4 mgms.; Hb. was 87 per cent, red blood cells 4,400,000 and white blood cells 12,550 with 80 per cent polymorphonuclears.

The patient felt much better within a few hours after admission. Skin became warm and dry. At 5:40 p. m. while the heart was being auscultated the patient had a severe precordial pain, became cyanotic and died. Three systoles, each weaker than its predecessor, were heard, then silence. The sound was described as "sh-sh-sh."

This patient had been examined every year for about ten years prior to death. He had never complained of his heart. Sugar was first found in the urine in 1927. The blood pressure varied between 120 and 146 systolic and between 78 and 90 diastolic. Heart sounds were always normal.

Case 3. J. C. R., male, aged 65 years, a drawbridge tender, was admitted to Research Hospital, March 5, 1934, at about 10 a. m.

History.—Sudden, knife-like pain in the pit of the stomach occurred after a heavy meal and after doing some work not in line of employment on the evening previous to admittance to hospital. He became weak and broke into a profuse sweat. There was some improvement during the night. Brought to hospital by ambulance with a tentative diagnosis of coronary thrombosis or perforated viscus. No pain directly over the precordium.

Physical Signs.—On arrival at the hospital he was in evident agony despite opiate and had some cyanosis. Respiration was shallow and grunting. The least effort to turn on either side produced more agony and cyanosis. No abnormal lung sounds could be detected. No heart murmurs and heart sounded distant. The pulse was rapid. Blood pressure was 148/94. Some apparent enlargement of the heart. Patient was at no time in condition to be moved for roentgenograms or electrocardiography. Abdomen tender in the epigastric region, along the rib margin to the right and in the right lower quadrant. At no point was there distinct muscle spasm. Liver edge was 5 cm. below the costal border and was tender. Dullness in both flanks and fluid wave were present. Some distention with gas in the central area. There was a dilated vein above the umbilicus but no definite caput medusae. Scleras were slightly icteric.

Progress.—Within a day after admission definite rigidity had developed in the right upper quadrant and precordial pain with fall of blood pressure to 90/66; shock had developed. There was also definite fluid

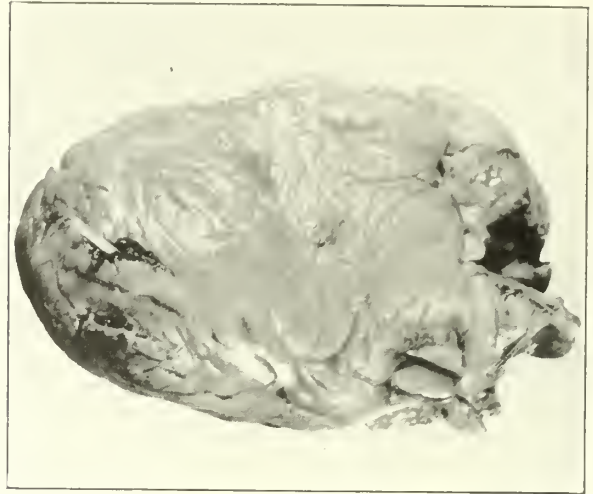


Fig. 2. Ragged perforation 1 cm. in diameter near apex of heart in left ventricle. (Probe to identify.) Area to the left was thin myocardium on the point of rupturing. Atheromatous plaque in anterior descending branch of left coronary artery was 1.5 cm. above perforation. Lumen was patent but sclerotic proximal to this point.

wave in the abdomen, marked cyanosis and pulmonary congestion. There were periods of collapse, profuse sweats and gradually increasing pulmonary edema. On the fourth day fibrillation of the heart was noted. Abdominal distention was marked but good results obtained with enema. On the fifth day a suprapubic puncture was done under local anesthetic; it was a dry tap and tube was left in. By the eighth day there was a marked decrease in tenderness and abdominal rigidity. Dullness in flanks, cyanosis and some pulmonary edema persisted. Heart tones were fairly good. Peristalsis had been noted for three days. Rubber drain was placed in lower abdominal incision. Patient was taken home in an ambulance on the twelfth day being obliged to avoid further hospital expense. He was definitely improved but unable to take anything but fluids in small sips. No emesis until six weeks after onset. Bowels moved readily by enema. Abdomen was flat and only slightly tender with practically no pain after third week of illness. Pulse and temperature were only slightly elevated at any time. Edema cleared up. There was great loss of weight in two months' time. The patient died after a submaxillary abscess had been opened, drained and healed, after abdomen had become flat and comfortable and after edema and cyanosis had cleared up—evidently from inanition.

Laboratory Findings.—The urine was acid, contained albumin, many assorted casts and some pus. Specific gravity ranged from 1007 to 1012. Hemoglobin was 102 per cent, red blood cells 5,010,000, white blood cells 12,900, polymorphonuclears 97 per cent. On the second day the white blood cells were 1750, on the fourth day 1200, then gradually increased to 12,400 on the seventh day and to 20,850 on the tenth day. Nonprotein nitrogen was 39.2; uric acid 3.44; sugar 162.6; chlorides 3.86. The nonprotein nitrogen rose to 125 on the fifth day and decreased to 56 on the tenth day. Other tests approached normal after the first day. Wassermann and Kahn tests were negative.

Autopsy was at 9 p. m. several hours after death on May 7, 1934, slightly over two months from date of onset of illness. No gross abnormality; nothing but dependent lividity and healed scar in the lower abdomen. No pleural exudate and "All lobes well aerated, noncongested and only slightly moist." Heart normal except that myocardium was "slightly flabby," weight 325 gms. Liver slightly enlarged with some chronic

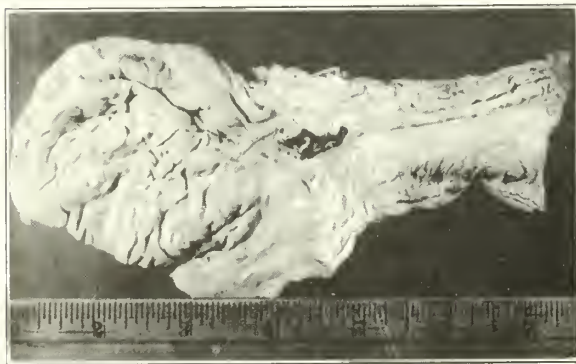


Fig. 1. Appearance of perforation of the esophagus measuring 1½ by 1 cm. just above the diaphragm. On microscopic study an area of ulceration was found in the mucosa just above the site of perforation.

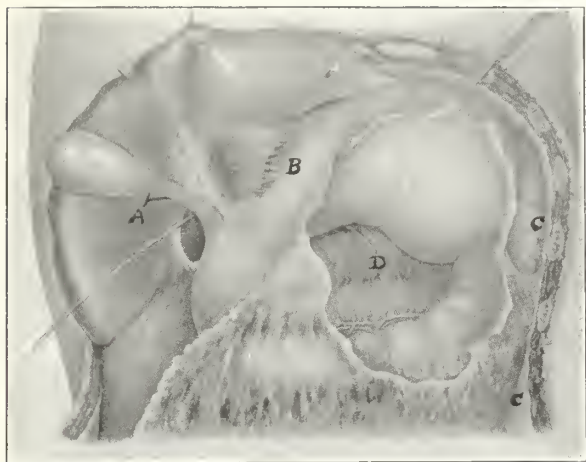


Fig. 3. Probe passing through foramen of Winslow into lesser sac. (A) Site of perforation of cystic duct. (B) Site of perforation of gastric ulcer and attachment to under surface of liver. (C-1 and C-2) Location of purulent collection which extended downward from the diaphragmatic surface of the spleen along the outer side of the descending colon. (D) The lesser peritoneal sac which contained much thin, purulent appearing material. The infection at A after perforation must have traveled downward along outer side of ascending colon to pelvis before it could have arrived at C. Dense old adhesions at A closing foramen separated the two peritoneal sacs. (From Deaver and Ashhurst.)

passive congestion. Gallbladder buried in omental adhesions also enclosing abscess cavity containing thick greenish yellow pus. Gallbladder was full of small stones with one rounded calculus protruding through gangrenous perforation in cystic duct. Peritoneum contained no free fluid. Long, string-like adhesions binding loops of small bowel and omentum to parietal surfaces were easily detached. There was a pocket of thin purulent material in the region of the spleen and another to the outer side of the descending colon. The lesser sac was filled with the same material. The stomach showed a 1 cm. ulcer on the lesser curvature, a "healing perforated gastric ulcer," with adhesions attaching the stomach to the under surface of the liver. The kidneys were the seat of multiple small focal abscesses.

The final diagnosis as given by the pathologist follows:

1. Ruptured gallbladder.
2. Chronic cholecystitis and cholelithiasis.
3. Low grade general peritonitis and abscess formation.
4. Acute toxic splenomegaly.
5. Chronic passive congestion of the liver.
6. Multiple abscesses of the right kidney.
7. Healing perforated gastric ulcer.
8. Chronic fibrous myocarditis (mild).
9. Congestion of lungs.

An addendum to the pathologist's report reads: "The difficulty of differentiating coronary thrombosis from gallbladder disease is again beautifully illustrated. The combination of a fall in blood pressure to 90/66 with cyanosis on slight exertion, rapid respiration, a slightly elevated and at times low white blood count, pulmonary edema, shock, precordial and epigastric pain and later fibrillation all point to a severe cardiac disease."

CONCLUSIONS

The first case was probably doomed to a fatal issue regardless of a prompt, correct, preoperative diagnosis. The second case is of interest largely because the physician was auscultating the heart when it ruptured, an extremely rare occurrence.

The third case has a number of lessons which we would list in order of importance as follows:

1. If we had acted upon an early diagnosis of ruptured ulcer the man's life might have been saved unless we had failed to recognize both ruptures, or, if one rupture antedated the other by a sufficient period reoperation might have been successful.

2. The two separate purulent collections starting from within a few inches of each other, one in the pylorus and one at the cystic duct, illustrate beautifully the extent to which infection may involve the general peritoneal cavity and may finally make the circuit along the ascending colon to the pelvis and thence up the lateral border of the descending colon to the fixed point behind the spleen where a thin, tough partition alone may separate it from another collection in the lesser sac.

3. The plastic exudate over the coils of intestines precluded effective drainage through the midline incision, but was suspected at the time incision was made.

4. At no time until a month after onset of symptoms did the patient appear to be a good surgical risk and then he refused operation and hospitalization under any circumstances.

1010 Professional Building.

PERFORATED PEPTIC ULCER

AN ANALYSIS OF 35 CASES

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The records of thirty-five cases of perforated peptic ulcer in the Rutherford Hospital, Rutherfordton, North Carolina, during the years 1923 to 1937 inclusive, form the basis of this study. Numerous original articles as well as various textbooks have been read in the preparation of this paper. However, it does not include a review of the extensive literature on the subject. Only those articles to which direct reference is made are included in the bibliography.

Table 1 gives in brief a part of the recorded data of these cases. Other pertinent facts not tabulated are mentioned under the various subheadings.

Age.—A statement frequently made in the literature is that a great number of perforations occur in the fourth decade of life. In this series the average age at perforation was 36.5 years. However, only eight or 23 per cent were actually within the period of 30 to 40 years of age. The average age obtained is therefore given by a much larger group who were either younger than 30 or older than 40. The oldest was 67 and the youngest was 15.

Sex.—Eliaison and Ebeling¹ state that the ratio of males to females in collected series of 2630 cases

From the Surgical Department of the Rutherford Hospital, Rutherfordton, North Carolina.

Thesis submitted to the Faculty of the Graduate School of Medicine of the University of Pennsylvania in partial fulfillment of the requirements for the degree of Master of Medical Science (M. Sc. (Med.)) for graduate work in surgery.

Table 1. *Data on Series*

Hosp. No.	Age	Sex	Time from Perforation to Operation	Tcmp.	Leukocyte Count	Pulse Rate	Days in Hospital	Result
10375	35	Male	Not recorded	97.6	No record	62	17	Recovered
11304	20	Male	3 hours	96	14,000	85	60	Recovered
11532	19	Male	2 hours	97.6	No record	110	23	Recovered
12833	24	Male	8 hours (?)	100.6	34,400	120	17	Recovered
13381	34	Male	Not operated upon					Died
							(General peritonitis)	
14740	39	Male	8 hours	100	13,800	90	18	Recovered
14868	27	Male	6 hours	98.4	9,000	84	23	Recovered
16186	35	Male	5 hours	97	No record	108	17	Recovered
16950	28	Male	3 hours	98.8	9,000	90	13	Recovered
17333	26	Male	6 hours	96	12,000	120	20	Recovered
17647	24	Male	20 hours (?)	101.8	15,000	96	19	Recovered
17534	45	Male	Not recorded	99.3	15,000	84	25	Recovered
17984	67	Male	18 hours	100.4	15,000	104	17	Recovered
20690	59	Female	7 hours	98.6	No record	85	23	Recovered
20696	25	Female	7 hours	100	13,550	68	22	Recovered
20764	61	Male	8 hours	100	No record	103	23	Recovered
20993	33	Male	24 28 hours (?)	100.5	9,150	100		Developed a massive pneumonia and died on 8th P. O. day.
21409	25	Male	Not recorded	98.2	10,600	100	24	Recovered
21505	46	Female	11 hours	100.4	21,000	95	21	Recovered
21554	16	Female	13 hours	100.6	3,950	100		Died on 6th P. O. day of bronchial pneumonia, empyema and possible embolism.
22474	24	Male	6 hours	99.6	12,250	105	17	Recovered
22496	42	Male	Not recorded	97.3	23,050	104	32	Recovered
33-229	39	Male	4 hours	97	14,300	98	18	Recovered
33-336	59	Male	5 hours	97	9,700	110		Died on 21st P. O. day. Had peritonitis and partial disruption wound.
33-1270	33	Male	3 hours (?)	97	9,700	60	18	Recovered
34-437	27	Male	3 hours	97	No record	70	17	Recovered
34-789	22	Male	9 hours	100	21,000	90	19	Recovered
35-288	55	Male	5 hours	96.5	12,900	70	21	Recovered
35-598	47	Male	4 hours	98	13,400	80	14	Recovered
35-1649	49	Male	46 hours	100	11,600	100		Died of general peritonitis on 8th P. O. day. Perforation reopened.
36-219	29	Male	5 hours	99	22,800	100	20	Recovered
36-1355	42	Male	5 hours	98.2	No record	78	21	Recovered
37-453	15	Female	Probably 2 or 3 days	103	31,400	130		Died of general peritonitis and shock 8 hours after operation.
37-1030	44	Female	Not determined	99	10,800	80	20	Recovered
37-1204	38	Female	3 hours	95	12,000	80	15	Recovered

was 31 to 1. They also state that Semb of Norway presented a series in which the ratio was 4 to 1 and the combined series of Stewart² and Barber and Patterson³ show a ratio of 5 to 1. As shown in table 1, seven or 20 per cent of this series occurred in females. This is a ratio of male to female of 4 to 1. Curiously enough, the two youngest, aged respectively 15 and 16, were females. Of the seven females in this series six had duodenal perforations.

Previous Ulcer History.—In each series of perforations reviewed in which this point is considered,

Table 2. *Age Incidence by Decades*

Second decade	4
Third decade	11
Fourth decade	8
Fifth decade	8
Sixth decade	2
Seventh decade	2

the first symptom of ulcer in some cases is the preperforative pain or that of actual perforation. The number varies because of a number of factors among which are the diligence with which the history taker makes his inquiries, the mental condition of the patient at the time of examination and the personal equation of what the examiner may consider as an ulcer history. In order to secure accurate information on this point the patient should be questioned again postoperatively; this was done in a few instances in this series. Periodic epigastric distress, heartburn, particularly if relieved by food or soda, evidence of gastro-intestinal bleeding or ulcer demonstrated by roentgen ray are considered to constitute a definite ulcer history. An ulcer history is considered vague if such terms as stomach trouble and indigestion are used.

Table 3 is a summary of the information in regard to ulcer history in this series.

Table 3. *Previous History of Ulcer*

Definite	19
Vague	6
None	7
Not recorded	3

The duration of ulcer symptoms, in those for whom it was recorded, was not stated frequently enough to be of statistical value. One had had definite symptoms for thirty years and another for only five days. Others were recorded as a few weeks, several months, a number of years.

Trauma.—Because of its occasional medicolegal significance the question of trauma as an etiologic factor in ulcer perforation is of interest. None of the series of cases reviewed considered this. Isolated instances of trauma as a factor in perforation have been reported. In none of this series is there a record of any trauma preceding perforation.

Onset and Course of Symptoms.—In the literature regarding perforated peptic ulcer no statement appears with more regularity than the description of the onset of symptoms as "sudden, dramatic and with agonizing pain." Other frequently used terms are "sticking pain," "shock," "fixation," "prostration" and "bathed in a cold sweat." While such pictures would be helpful in diagnosis they are not always present. In this series there was great variation in onset so that none can be termed characteristic. There were so many different kinds of early symptoms that it is difficult to make any sort of classification of them. About one third of the cases had a sudden violent excruciating pain with no warning. Others began with a sudden pain which was moderately severe and gradually became worse. Others had nausea or slight pain or both for several hours or days and then had a sudden onset of severe pain. Others had a mild onset of abdominal pain and then a steady but gradual increase in severity. Some began with a colicky type of pain. Two had a rather sudden severe onset with a rapid subsidence of pain without narcotics only to have it return with equal or greater severity after a few hours. Eight of the patients gave a history of having previously had a similar type of pain but less severe. The dissimilarity in symptoms is well illustrated by a consideration of cases 35-598 and 37-453. The latter was the daughter of the former and suffered a perforation twenty-three months after her father did. It had occurred two or three days before she was brought to the hospital in a moribund condition. The early symptoms of the two as shown by their records were quite different. It may be surmised that to the family they must have appeared very much unlike or they would have insisted upon earlier hospitalization.

Vomiting.—Seven of the patients' histories contain no record in regard to vomiting. A few had been nauseated or vomited before there was any pain. Twenty-five gave a history of having vomited after onset of pain. Three had not vomited but were nauseated.

General Condition and Appearance.—This does not lend itself to tabulation. However, there was great variation in the appearance and general condition of these patients. This was no doubt frequently modified by a number of them having had narcotics before being sent to the hospital. Unfortunately, few of the histories contain any record in regard to this. One patient who had within two hours before admission been given 2, 3 gr. of pantopon was howling with pain. Another who had had no medication was recorded as being comfortable. Six were said to be in shock. One was moribund. The majority were described as being uncomfortable.

Abdominal Tenderness.—All the histories recorded the presence of abdominal tenderness or soreness upon pressure. This seemed to vary considerably in intensity but by the majority was described as severe. Again, in some cases this was no doubt influenced by the previous administration of a narcotic. In practically all there was tenderness of some degree over the entire abdomen. In some there was no localization and in others there was definite localization.

Table 4. *Location and Degree of Abdominal Tenderness*

Generalized and severe	18
Generalized and severe with localization in right lower quadrant	6
Moderate and generalized	3
Moderately severe in lower abdomen	2
Localized in right upper quadrant	1
Very slight in upper half and moderate in lower	1
Generalized but more intense in right lower quadrant and epigastrium	1

Abdominal Rigidity.—In most of the histories there are specific records of the location and degree of abdominal rigidity. This is shown in tabular form in table 5.

Table 5. *Degree and Location of Abdominal Rigidity*

Generalized boardlike	23
Generalized moderate	4
Wholly or mostly on right side	7
No rigidity	1

Temperature Upon Admission.—As is shown in table 1 the temperatures of the patients in this series varied from a low of 95 F. to a high of 103 F. The first had suffered her perforation three hours prior to admission and the latter two or three days before. None who were examined within five hours after perforation had an elevation of temperature. Most of those examined after a six hour interval had a moderate elevation.

Leukocyte Count.—This was recorded for twenty-seven of the patients and shows a wide range from 3950 to 34,400. Twenty had a definite leukocytosis. Six had a normal count and one had a leukopenia. Leukocytic response to perforation was prompt in some instances as there was an elevation of the white blood count in some of the cases seen as early as three or four hours after onset of symptoms.

Pulse Rate.—The pulse rates show a variation from 60 to 130 with the average of 91 computed from the records of thirty-two cases.

Diagnosis.—With the great variation in histories, symptoms and findings of this group of patients it is not surprising that the wrong diagnosis was made in a rather high percentage of cases.

Table 6. *Diagnoses Made*

Perforated ulcer	17
Appendicitis	11
Perforated ulcer or acute pancreatitis	1
Perforated ulcer or obstruction	1
Tubal pregnancy	1
Gastro-enterostomy leakage	1
No diagnosis except "surgical abdomen"	2

Thirty-one were considered to have some condition requiring immediate surgery. Three were observed for a time before operation. The one who was thought to have a leak of a gastro-enterostomy was not operated upon. This case presents features unusual enough to merit a brief report.

REPORT OF CASE

Patient was a lawyer aged 34 years. Entered Rutherford Hospital June 12, 1925, with a definite history of ulcer of about one year duration. For about a month prior to admission he had been much worse and vomiting had become a prominent symptom. For three days he had noticed tarry stools. Hemoglobin estimation upon admission was 50 per cent. He was placed on medical treatment but there was little or no improvement of symptoms except that the bleeding apparently stopped. Operation was recommended and accepted. This was performed July 1, 1925, by Dr. M. H. Biggs and consisted of appendectomy and posterior gastro-jejunostomy. In the region of the pylorus anteriorly there was found a dime sized scar of ulceration. Upon palpation, the ulcer was found to be quite extensive. Due to distortion of adjacent structures it was not determined if it was in the gastric or duodenal side.

The postoperative course in brief was as follows:

July 1, 1925: Operation. Patient reacted well.

July 2, 1925: A good day, temperature ranged from 99.2 F. to 102.6 F.

July 3, 1925: Comfortable in early morning, then complained of "catch" in lower chest or upper abdomen. In afternoon abdomen became distended. This was partially relieved by an enema. Later the stomach was lavaged and an ounce of castor oil left in it. During the night some flatus and feces were expelled. The temperature ranged from 100.4 F. to 102.4 F. and pulse rate was 100.

July 4, 1925: Bowels moved freely several times. Given small amounts of liquids every four hours. Had little pain. Was given $\frac{1}{8}$ gr. of morphine at 10:20 p. m. Pulse rose to 110 and respirations were shallow and ranged from 30 to 50 per minute. Chest roentgen ray showed nothing unusual. The leukocyte count was 8000.

July 5, 1925: No unusual symptoms until 9 a. m., then began to perspire freely and complain of being dizzy and chilly. Bowels moved freely several times. At 5 p. m. he complained of a severe pain in region of lower end of incision but refused a hypodermic. An hour later, the pain was less intense but he then took $\frac{1}{6}$ gr. of morphine hypodermically. Bowels moved again. At 9:30 stomach was distended and following a glycerine enema a large amount of gas and feces was expelled. Was uncomfortable at 10 p. m. and morphine

was again given. Temperature ranged from 100 F. to 102 F. Pulse rose to 120. Respirations were 40.

July 6, 1925: Early in the morning his condition became much worse. Pulse became weak. Temperature dropped to 98.6 F. and then rapidly rose to 105 F. by 2:30 p. m. Death occurred at 3 p. m.

An autopsy limited to the abdomen was performed by Dr. Henry Norris. A summary of the important findings follows:

The wound edges were necrotic. When the peritoneum was opened a considerable quantity of serous fluid was found. The appendiceal stump was found to be closed. The site of the anastomosis was found to be in good condition. The stomach was opened anteriorly and the anastomosis examined from the inside. The stoma easily admitted two fingers. The ulcer which was found at operation was determined to be in the duodenum and was perforated. No other ulcers were found.

Just when the perforation occurred is impossible to state with certainty. Dr. Norris recorded as his opinion that on the second postoperative day a slight leak occurred and two days later it reopened.

Within a period of less than a month, this one ulcer exhibited the three major complications of peptic ulcer disease, pyloric obstruction, hemorrhage and perforation.

Treatment.—Immediate operation was the treatment for thirty-one of these cases. Only two of these were given intravenous saline and glucose before operation. Surgery was delayed for three for a time because a diagnosis was not made. One was not operated upon following perforation.

In table 7 the operative procedures are tabulated.

Table 7. *Operative Procedures*

Closure of perforation and drainage	9
Closure of perforation, appendectomy and drainage	18
Closure of perforation, appendectomy, gastro-enterostomy and no drainage	4
Closure of perforation, appendectomy, gastro-enterostomy and drainage	1
Closure of perforation, gastro-enterostomy and drainage	1
Drainage without closure of perforation	1

The patient whose perforation was not closed had a lesion in the posterior duodenum and at operation his condition seemed to be desperate; a drain was inserted and the operation concluded as rapidly as possible.

Appendectomy was performed in twenty-three cases. In some of these the preoperative diagnosis was appendicitis and the incision was for appendectomy. The remainder had the appendix removed as a routine measure when the surgeon considered the patient's condition justified it.

Of the six gastro-enterostomies done, only one has been performed since 1928. This patient had a large calloused ulcer just distal to the pylorus.

Thirty of the thirty-four cases operated upon were drained. Most of the drains in the earlier ones were rubber tubes while in the later years a Penrose type has been employed. All the drains were inserted in the upper abdomen and protruded through the incision.

Wound closure was quite uniform. All but one were closed in layers with chromic catgut used for the peritoneum and fascia. Stay sutures through the fascia and clips in the skin completed the closure. The one wound not closed in this

manner had through and through sutures of dermal with clips in the skin.

The actual closure of the perforation was accomplished by a number of methods and with a variety of sutures. Most of them had the edges curetted before closure. None were cauterized. Some had a double purse-string suture placed about the perforation. Others had a single purse-string and this was reinforced with a row of interrupted sutures. The majority were plicated with two rows of interrupted sutures. Catgut, equisetene, silk and linen were used, singly and in various combinations. A tag of fat was tacked over the closure in a number of instances.

Ether and nitrous oxide, oxygen and ether were the anesthetics employed thirty-three times. One desperately ill patient was operated upon under a combination of local anesthetic and nitrous oxide and oxygen.

Location of Perforation.—Of the twenty-eight males in this series, twenty-five had perforations in the anterior first portion of the duodenum. Two had gastric perforations and one perforation was in the posterior first portion of the duodenum. In the seven females there were six perforations of the anterior duodenum and one of the stomach.

Postoperative Care.—This was almost routine. Nothing was given by mouth for three days. Fluids, saline and glucose were given intravenously, by hypodermoclysis and by rectum. Small liquid feedings were then begun and gradually increased. If drainage had been instituted, the drains were removed as indicated.

Results.—The first and most important result to be considered is the primary mortality rate. The one patient not operated upon following perforation succumbed. Among the remaining thirty-four there were five fatalities. This is an operative mortality rate of 14.7 per cent. Eliason and Ebeling¹ in 1934 computed the mortality rate for 1940 patients reported in this country from 1921 to 1934 and found it to be 25.9 per cent. They pointed out that most of these were from university, teaching and the larger private clinics and ventured the opinion that if all the cases in the United States were reported the operative mortality would exceed the recorded one by a wide margin.

There are a number of excellent papers notably by Brown,⁴ Schulte⁵ and Moynihan,⁶ among others, which show graphically the influence upon the mortality rate of the time elapsing from perforation to operation. Since the time of perforation in several of this series could not be exactly determined, it is useless to attempt to show this in tabular form for this group. However, the effect of long delayed operation is shown well. Of the three patients operated upon later than twenty-four hours after perforation, none recovered. One other fatality followed an operation thirteen hours after perforation and the other was operated upon within five hours. This last mentioned case illustrates another factor to be considered in the prognosis of a given

case and that is the nature of the stomach contents at the time of perforation. As is well known most perforations occur when the stomach is comparatively empty and the contents are relatively sterile. This patient suffered the perforation immediately after eating a lunch consisting largely of milk and corn bread and at operation these articles of diet were found among the gastric contents spilled into the peritoneal cavity. Undoubtedly the peritoneum was immediately infected with bacteria. The patient developed septic peritonitis and had a paralytic ileus which was treated by enterostomy. The wound became badly infected and partly disrupted and death occurred three weeks after operation.

The type and extent of operative procedures cannot be shown to have had any influence upon the mortality rate as this seems to have been dependent upon other factors. Of the twenty-three patients upon whom appendectomy was performed, two died; of the eleven whose appendices were not removed, three died. All of the six who had gastro-enterostomies recovered. There were no fatalities in the group of four who were not drained. The one whose perforation was not closed recovered. There was one whose perforation reopened. He had a gastric lesion and operation was performed after forty-six hours. Catgut was used to close the perforation. Death occurred eight days later and at autopsy the perforation was leaking and there was no trace of the sutures used in its closure. There were two badly infected and partially disrupted wounds. Both of these patients succumbed. Another patient had a troublesome wound infection. The first two had been drained and the latter was closed without drainage. The other three wounds closed without drainage healed without infection. All of the twenty-five who survived after drainage had excellent wound healing. Two who died of pulmonary complications were having no difficulties with their wounds.

Length of Stay in Hospital.—Of the twenty-nine survivors, the average length of hospital stay was 21.2 days. The patient with the badly infected wound remained sixty days. The shortest stay was thirteen days.

Causes of Death.—The cause of death of each of the six fatal cases is shown in table 1. Two developed fatal pulmonary complications and peritonitis was the cause of death of the other four.

COMMENT

Early diagnosis and early operation are essential in the treatment of perforated peptic ulcer. If the onset of symptoms is sudden and violent and upon examination there is boardlike rigidity of the abdomen, it is usually not difficult to make a diagnosis. As shown in the records of this group of cases, patients may not have these two valuable signs and a real diagnostic problem arises. If the condition is immediately recognized as one requiring surgery, it is of little consequence if the exact diagnosis is not made.

In this series of cases in which a wide variety and extent of operative procedures were carried out, there was a comparatively low mortality rate. This would indicate that the kind and extent of operation has little influence upon the result.

The question of drainage of the abdominal cavity occupies considerable space in the literature on this subject. Some writers advocate drainage of all cases. Others drain only in cases of delayed operation or extensive soiling of the peritoneal cavity. Only four or 13 per cent of this series were closed without drainage and all of these were operated upon less than six hours after perforation.

Numerous writers insist that if drainage is done it should always be through a suprapubic or flank stab wound in order to avert wound infection. With the excellent wound healing obtained in the twenty-five survivors of this series who were drained through the incision, considerable doubt may be cast upon their contentions.

SUMMARY AND CONCLUSIONS

1. The records of thirty-five cases of perforated peptic ulcer are reviewed. Seven or 20 per cent of these were females. The age range was from 15 to 67 years.
2. Because of certain unusual features one case record is reviewed in detail.
3. Twenty-five of these gave a history of ulcer.
4. The onset and course of symptoms and the findings upon examination differed to a great degree.
5. While the exact diagnosis was made in only about one half of the cases, thirty-one were considered to have a condition requiring immediate surgery. Three were observed for a time before operation. One was not operated upon.
6. The operative procedures employed were not uniform.
7. Thirty or 87 per cent were drained through the incision. Twenty-five of these recovered with well healed wounds. This would indicate that this is an acceptable procedure.
8. The operative mortality rate was 14.7 per cent.
9. Since most of the reported series of perforated ulcers are from the larger metropolitan hospitals, this one from a smaller institution should be of interest.

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The type of food given an infant is not a factor in causing the amount of his energy. Experiments have proved that there is no specific food that can have any influence at all on the baby's energy.—*Hygeia*.

LYMPHOGRANULOMA VENEREUM

ITS RELATION TO STRICTURE OF THE RECTUM

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Probably the most fascinating disease entity that has come to our attention during the last decade is lymphopathia venereum. While stricture of the rectum and anal esthiomene are of special interest to us as proctologists, it must be realized that virtually every phase of scientific medicine is invaded by one or more of its processes.

UBIQUITY

The disease entity was formerly considered of rare occurrence, present only in tropical climates, confined to the groin and most prevalent in men. Recent investigations, however, have widened the scope besides showing the gross fallacy of previous conceptions. Although it has been our experience at the Graduate Hospital, University of Pennsylvania, in finding a greater frequency in the Negro race, it cannot be said whether or not this alone is evidence of race predilection. There appears to be no definite age incidence although most cases occur between 17 and 35 years. This in part may be due to this being the period of greatest sexual activity. Bacon¹ in 1936 collected 3977 cases from twenty-two countries tabulated by only one fifteenth of the authors who had written on the subject, so it is reasonable to assume that lymphopathia venereum is a most ubiquitous disease.

HISTORY

The Greeks and Romans described this affection under the terms "panus" and "struma." Early in the thirteenth century it was thought that these buboes were of venereal origin. W. Wallace²⁰ in 1833 offered noteworthy accounts of its early manifestations. Trousseau²⁹ mentioned that the infection was common in Creoles on the islands of Reunion and Maurice, while Ruge²³ in 1896 observed many cases among German sailors. In the same year Gooding,¹⁰ a British naval surgeon, referred to this condition as "climatic bubo." In 1913 Durand, Nicolas and Favre⁷ classified nonvenereal bubo as a new venereal disease and offered clinical as well as histologic data as evidence that this disease was an independent entity. They mentioned that it was of an infectious and contagious nature contracted through sexual contact. Even though these workers did not appreciate the close analogy between this and climatic bubo, which since has been shown to be identical they did realize that this pathologic process was not a new disease.

Read before the Proctologic Society of the Graduate Hospital, May 11, 1938.

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ETIOLOGY

As to etiology of lymphopathia venereum little can be said except that it is presumably caused by a filtrable virus. However, some characteristics of the virus have been observed. According to Levaditi¹⁷ the virus can pass through a Berkefeld V candle and a Chamberlain L 3 candle filter although he remarks that this is not constant. The virus is apparently destroyed by heating at 60 C. and is poorly resistant to glycerine and drying. Tamura²⁷ claims to have cultured the virus using a modification of Tyrode's media.

CONTEMPORARY HYPOTHESES

Some investigators have incriminated various organisms including the pyogenic bacteria, diphtheroid-like organism and pleomorphic forms of bacilli as the causative agents. Saenz²⁴ reported three cases of lymphopathia venereum as shown by a positive Frei test in which the *Mycobacterium tuberculosis* was demonstrated in the blood by inoculation of guinea pigs. None of this work has been accurately substantiated.

ANIMAL EXPERIMENTATION

Although a vast amount of work has been done in attempting to transfer this disease to animals the efforts of Hellerström¹³ and Levaditi¹⁷ stand foremost. The animals used were monkeys, guinea pigs, dogs, white mice and rabbits. The methods employed included injections by subcutaneous, intravenous, intramuscular, intracerebral, intraperitoneal and intratesticular routes. Hellerström¹² transmitted the disease to monkeys by injecting gland suspension into the cerebrum, thereby producing a generalized leptomeningitis which presented the typical histologic changes as described by Nicolas and Favre.²² From the glands of these monkeys so infected an antigen was prepared which gave a positive Frei test when injected intradermally in patients with the disease. From his observations he deduced that the causative factor of lymphopathia venereum is an ultramicroscopic filtrable virus. Levaditi¹⁶ demonstrated the presence of the virus (in the liver, kidneys, spleen and to some extent in the blood) in seven or eight cases by the intracerebral inoculation of monkeys with macerated tissue and pus from the swollen gland. He and his coworkers also found that by injecting white mice with emulsified blood from previously inoculated mice they were able to demonstrate the presence of virus in the blood of all organs examined. They concluded that the organisms of lymphopathia venereum do not pass an ultrafilter; that the virus remains virulent for at least twelve days in a vacuum at low temperature and that the disease when experimentally produced in the mouse is analagous to that in the ape. Characteristic swellings have been produced in guinea pigs but only recently has definite transmission of virus into abdominal skin of guinea pigs with a virulent emulsion produced specific red papules. He also

observed that injections of the virus previously mixed with serum from patients with lymphopathia venereum produced no lesion, whereas, if normal serum is used the action of the virus is not inhibited. Darre⁶ believes that the infection confers immunity on those suffering with the disease as shown by the inability to reinfect or reinoculate patients with the virus. Jonesco-Mehauster, Tupa, Badenski and Wisner¹⁰ produced an acute pseudotabetic syndrome in a monkey by inoculating with the virus of lymphopathia venereum. From this it is apparent that this disease, in animals, is capable of causing lesions similar to that of syphilis. Levaditi denies this but others have described a positive Frei test for tabes.

MODE OF CONVEYANCE

It is generally accepted that the disease is transmitted by coitus although accidentally acquired cases in surgeons are reported. Levy reports a case in a girl of 6 and S. Nocilos a case in a girl of 8 that were of nonvenereal origin. The parents of both these children had positive Frei test and other evidence of the disease such as rectal stricture. Coutts believes there exists a direct relationship between coitus-buccalis and the appearance of genital ulceration; this view is also held by Bushke¹ and others.

LESIONS IN THE FEMALE

Lesions in the female differ from those in the male in that the clinical course is more chronic, the initial lesion is seldom seen, inguinal adenitis is uncommon and stricture of the rectum more frequent. As this disease is primarily one of the lymphatic system, one must be familiar with the lymphatic drainage of the male and female genital organs to account for the different lesions which occur.

In the male, the lymphatics of the prepuce and frenulum pass to the superficial inguinal nodes, while those from the glans, sulcus corona and mucosa of the urethra drain into the deep subinguinal nodes. In addition both send small vessels to a third group, the superficial subinguinal nodes. The afferents of all the inguinal nodes pass mainly from the external iliac nodes. There also exists a network from the penis which extends backward accompanying the internal pudic artery beneath the urogenital trigone and passes retroperitoneally to empty into the hypogastric and iliac nodes. These lymphatics anastomose with those of the prostate, bladder and anorectal glands of Gerota. This in part will explain the frequency of inguinal adenitis and the rarity of rectal stricture in male subjects. It has been thought by some that stricture in the male was caused by infection introduced during pederasty.²⁰ The lymphatics of the vulva in the female drain for the most part into the superficial inguinal nodes, those of the clitoris into the deep inguinal nodes. The lymphatics of the perianal skin drain directly into the inguinal nodes. The subcutaneous network and that around the external

sphincter drain into the inguinal nodes but to a lesser extent; the lymph extends above the ano-rectal line into the mural vessels. The vaginal lymphatics have two systems of network, one mucosal and one muscular, which communicate with a perivaginal plexus giving rise to the collecting vessels. The mucosal network communicates inferiorly at the introitus with the vestibular vessels, and superiorly with the cervical vessels. Four collecting trunks arise from the left side of the perivaginal plexus. The two lower trunks run upward to the lateral sacral nodes. The upper trunks pass downward and then upward, one ending in the lateral sacral node, the other turning laterally to reach a hypogastric node. The posterior perivaginal lymphatic plexus communicates directly with the lymphatics of the anterior wall of the rectum. They lie in the rectovaginal septum. The collecting vessels pass through the rectal stalks to the lateral sacral node (retrorectal); one vessel arising from the uppermost portion of the vaginal network turns laterally and ends in the external iliac group. This accounts for the greater frequency of rectal stricture in women since the initial lesion most frequently in the female is in the fourchet, posterior vaginal wall or posterior lip of the cervix.

PATHOLOGY

The invasion of the lymphatic network with the specific virus results in a nutritional interference in the region draining into the adjacent glands. Because of this chronic inflammatory exudative process young fibroblastic tissue is deposited which brings about a thickening of the bowel wall. This encroachment on the lumen with subsequent contraction of the maturing fibroblastic tissue causes marked thickening which increases and eventually results in a firm inelastic organ narrowing, termed stricture. There are erosions of the mucous membrane which are followed by ulcerations, the mucosa becoming lusterless. The involved area becomes thick and firm with scattered mammillations. As the disease progresses the area feels leathery

and is firm and inelastic and the mucous membrane is adherent to the tissue beneath. All the coats of the rectum are infiltrated with fibrous tissue but this is more marked in the submucosa. A fistulous tract may be found extending to the perirectal tissues, to adjacent structures as the urethra or vagina or through the skin. Ulceration is marked and the discharge is usually abundant, mucopurulent and blood tinged. Above the stricture the bowel is dilated and the mucosa is injected and sterocoral ulcers are present. This is due to retained fecal content and bacterial activity. Below the stricture the mucous membrane appears gray and is tough and dense. Ulceration is less common here. The anal skin is often thickened and papillomatous vegetations may project into the lumen and through the anal orifice. The tissue cuts with difficulty and is white and glistening.

Histopathologically there is shown an infiltration of all the coats of the bowel with fibrous tissue, with diffuse small cell infiltration of lymphocytes, plasma cells, polynuclear leukocytes, epithelioid cells and newly formed capillaries. The normal structure of the bowel has been lost. Characteristic minute star-shaped abscesses are found in the bowel wall. The walls are composed of epithelioid cells, often arranged in palisade formation. Cellular debris, poly-

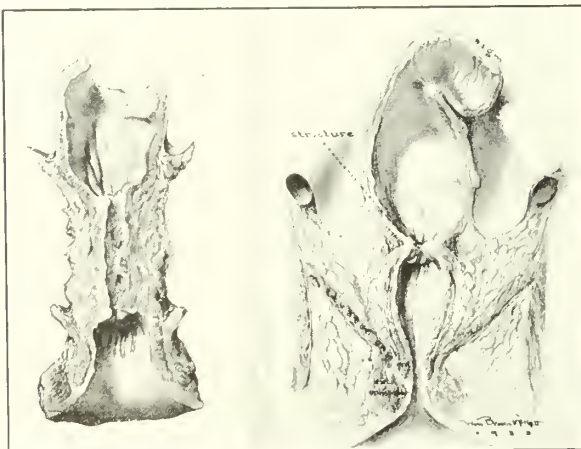


Fig. 1. Coronal section of tubular stricture of rectum on the left; annular stricture of rectum on the right.



Fig. 2. Esthiomene of anus and vulva.

morphonuclear leukocytes and monocytes are contained within the abscessed cavities. Giant cells of the Langerhans type are occasionally found. There is marked perivascular thickening with infiltration of the lymph spaces running in the sheath of the vessels. The perirectal fatty tissue close to the wall of the rectum showed an obliterating arteritis. The wall of the vein also shows fibroblastic infiltration.

SYMPTOMS

In all cases the symptoms vary with the degree of completeness of the constriction and this is usually dependent on its location and duration. At first a bearing-down sensation or a feeling of discomfort in the rectum frequently exists. Constipation is progressive and a constant desire for stool is complained of by the patient so that futile and painful straining soon develops. The evacuations, which are always incomplete and which are increased by the use of various drastic purgatives, become liquid and tinged with blood so that, as the condition progresses, there is an almost constant dribbling of mucus, pus and feces. Many writers stress the occurrence of ribbon-shaped stools in stricture of the rectum, but in our experience this is uncommon except where the degree of constriction is marked and where it is located immediately above the anorectal line. Soreness about the anus is frequently present owing to the excoriation caused by the irritating discharge. Concomitant gastro-intestinal symptoms as ano-

rexia, meteorism, coated tongue as well as loss of weight and general impairment in the health of the individual are later manifestations. Not unimportant is the previous history, especially of anorectal and pelvic operations or disorders. Of course, an investigation of the possibility of a venereal background should not be omitted.

A history of constant soiling by feces, blood and pus is suggestive of an inflammatory stricture especially when cited by a Negro female between the ages of 20 and 40 years.²¹ Although the diagnosis by inspection is not absolute, to the careful observer it offers more than a suspicion of the condition present. Not infrequently the region about the anus is moist and glued together by the thick mucopurulent discharge. Upon separation of the buttocks, fecal matter mixed with blood and pus may be seen seeping through the anal orifice. Hypertrophied skin tags, condylomata of various sizes and one or more fistulous openings are not uncommon.

Since approximately all inflammatory strictures of the rectum are within reach of the finger, the diagnosis should not be difficult. As the gloved finger is inserted into the anal canal, some degree of muscular relaxation will be noted in long-standing cases owing to fatigue of the external sphincter, yet gentleness should attend this procedure since pain and discomfort are not unusual. As the finger is advanced the stricture will be felt as a firm, inelastic narrowing, usually involving the entire cir-



Fig. 3. Positive Frei test noted at the expiration of seventy-two hours.

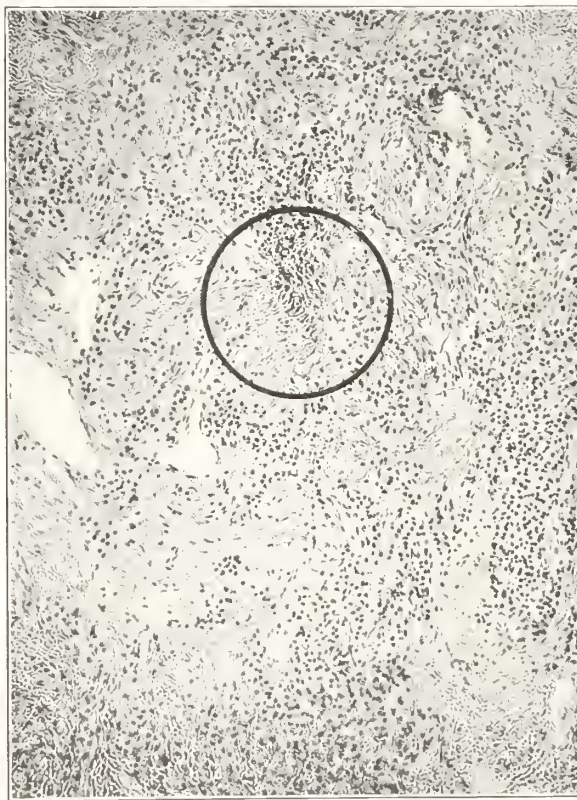


Fig. 4. Photomicrograph of esthiomeric process (low power) showing many epithelioid cells.



Fig. 5. Roentgenogram of inflammatory tubular stricture of rectum showing irregular deformity.

cumference of the rectum. If the lumen of the stricture is of sufficient size to admit the tip of the index finger, the finger can usually be passed to its entire length. However, such introduction should be attended by great care since forcible insertion not only causes pain to the patient but is dangerous because the diseased tissue is so friable that hemorrhage and perforation may ensue. Through an ordinary proctoscope, the stricture (or in the case of the tubular variety, the lower border of the stricture) is noted by its pale, leathery and thickened appearance.

In each case of stricture, especially when located in the sigmoid or at a high level in the rectum, roentgenograms should be taken after an opaque enema. In this way the irregular deformity will be noted. The method devised by Martin,¹⁸ Sturr²⁶ and Bacon² has proved of distinct value in estimating the accurate length and site of rectal strictures. Here, a soft rubber catheter of small size, calibrated in centimeters by strips of lead foil, is encased in a rubber balloon and inserted into and through the stricture. The proximal end of the balloon is tied so that no barium will escape after its introduction through the catheter. Under the fluoroscope, the barium or other opaque solution is permitted to run in until the stricture is clearly outlined. Films are then taken and when these are dry the length of the stricture as well as its distance from the anal margin are calculated by means of the lead strips.

FREI TEST

In 1925 Wilhelm Frei⁸ introduced a specific cutaneous test for this disease which has proved of distinct diagnostic value in inguinal adenopathies and anorectal syndromes. The method follows: 0.1 cc. of antigen is injected intradermally into the arm of the patient. The reaction, which reaches its maximum in from forty-eight to seventy-two hours after the injection, is read. A positive test is characterized by the appearance of a hard, erythematous ring. Reactions that are strongly positive are considered specific, while those that are weakly positive or difficult to interpret should be repeated. Material for the test is obtained from patients with lymphopathia venereum as proved by positive Frei tests, using a known positive antigen. Pus from a bubo or tissue from the anovulvar region of patient showing an esthiomenic process or fragments of rectal stricture, can be utilized to prepare the antigen.¹⁹

In preparation of the Frei antigen physiological salt solution is added as a diluent to the material collected which is then heated on a water bath at 60 C. for two hours one day and at 60 C. for one hour on the second day. Tests for sterility are performed and if sterile the material is sealed in sterile ampules ready for use. The antigen is tested on known positive cases of lymphopathia venereum as previously determined by giving positive Frei reactions.

A control antigen may be used, using antigen ob-



Fig. 6. There is a constant, conical filling defect involving the lower distal half of the rectum with gradual decreasing diminution of the lumen throughout the area of involvement, the latter being most marked at the recto-anal juncture. The walls are slightly ragged, infiltrated and inflexible. Case of lymphopathia venereum.

tained from glands of patient not affected with lymphopathia venereum or a sterile solution of leukocytes may be used. Wang²¹ suggests a control of phenol 0.25 per cent in normal saline solution, 0.1 cc. being injected into the forearm. When the control test is noted (at the time the Frei reaction is read in from forty-eight to seventy-two hours after the injection) no elevation, pustule or erythematous zone should be present. This constitutes a negative control test. Ordinarily male patients with this disease who present inguinal buboes will show a positive Frei reaction if tested one week following onset of the adenitis although the usual time is from two weeks to two months.

TREATMENT

There is no specific treatment for lymphopathia venereum, consequently a multiplicity of therapies has been suggested. Bacon and Martin²¹ admit that there is no curative method for rectal stricture. Antimony and potassium tartrate have proved generally unsuccessful. Fuadin,^{25, 28} which is an antimony preparation, has been used with good results by some clinicians but in our experience has given little improvement. Foreign protein therapy with typhoid vaccine^{3, 11} and treatment with Lugol's solution⁹ and potassium iodide have so far proved to be unsatisfactory.

Surgery is the best means of dealing with rectal stricture. Diathermy, dilatation and carbon dioxide snow⁵ have proved of value in a limited number of cases. Stricturotomy is only palliative and necessitates subsequent dilatation. The Jelks operation¹⁴ is of value when the length of the stricture does not exceed one inch; the Keller tunnel skin graft is of use only where the stricture is short or where anal stenosis exists. Palliatively, a colostomy is the method of choice, yet a preliminary double-barreled sigmoidostomy with subsequent perineal excision in the male or perineovaginal excision in the female is to be advocated as a radical procedure.

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NO EVIDENCE OF LASTING HARM DUE TO DRINKING "ICE WATER"

There is no reliable evidence that "ice water" causes any lasting harmful effects, *The Journal of the American Medical Association* for July 15 states.

"Taken in large quantities with a meal, water probably, through cooling, slows down gastric digestion for a few minutes," *The Journal* continues. "But this is probably of little practical significance. If taken in large quantities (from three to four glasses) and rapidly, water near the temperature of ice may induce, in addition to a painful cold sensation, a temporary spasm of the pharynx and esophagus as well as of the stomach, or even acute dilatation of the stomach in some people, especially when the body temperature is above normal, and as a consequence reflex excitability is somewhat increased.

"We eat ice cream, and the Eskimo eats frozen meat, without evident injury. So it seems that the temperature of ingested water is primarily a matter of habit and convenience, not a matter of health, and has no relation to a person's occupation.

"Most people in this country are conditioned to drink water so much cooler than the normal human body that a distinct and usually pleasant sensation of cold in the mouth, throat and esophagus is produced, obscuring the sensation of thirst and tending to produce the impression that the real thirst is stopped almost at once with cold water but not with tepid or warm water. The real need of the body for water is met by water within the temperatures not actually injurious to the mucous membranes of the digestive tract. There is no reliable evidence that 'ice water' (water at from 37 to 50 F.) causes chronic injury to the alimentary tract."

BLACK WIDOW SPIDER BITE

REPORT OF TWO CASES

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The *Latrodectus mactans* (black widow spider) is generally considered the only spider in this country whose bite produces a severe systemic reaction. We now know that the bite of this insect is always potentially dangerous, carrying with it the possibility of a fatal termination.

Only since 1926 has serious effort been made to acquaint the profession and public with this injury and as yet little can be found regarding it in any of the standard medical texts. The apparently greater infestation of certain regions has resulted in a tendency toward emphasis in the literature from those sections while there remains a scarcity from those areas where the spider has not been so common. A review of the medical literature from Missouri to date fails to reveal a single case reported from this state.* It has not been easy to convince many in the profession of the variety, severity or importance of the symptoms. That these are both important and severe is attested by one state now listing several deaths annually from this source. In view of this and of two recent cases which presented some interesting and unusual features, it was felt that a report on the subject would be advantageous.

Detailed studies of Bogen,^{1,2} Blair³ and D'Amour⁴ present excellent information regarding the incidence, characteristics and habits of the *Latrodectus mactans* and these papers will be quoted freely.

Spiders of the genus *Latrodectus* appear to have world wide distribution and they are universally feared because of their poisonous bite. They are known to occur in Europe, Australia, North and South America and Africa. Prior to about 1934 it was thought that their occurrence was more or less limited to approximately the southern half of the United States. D'Amour⁴ in 1936 found reports of the spider in all but the following states: Oregon, Minnesota, Iowa, Missouri, Wisconsin, Illinois and Vermont. Although occasional reports of what was assumed to have been a black widow spider bite have been circulated in this section of the state they have, in many instances, been hearsay and without background. That these spiders are present in this area is certain for they are frequently on display at fairs. With reports of these poisonings gradually making their appearance in medical literature from locations hitherto thought to be immune, we are finding that these cases are much more frequent than has generally been believed and it is most probable that no section of this country is entirely free from this insect.

The mature black widow spider is a shiny, jet black color with a body presenting two portions, that containing the head called the cephalothorax

which is relatively small and the abdomen which is of a globoid shape and may vary in length up to 1.5 centimeters. The abdomen is generally solid black with the typical "hour glass" marking on its ventral surface in a red or red-orange color. There may also be a tiny red dot dorsal to the spinnerets as was seen on the spider herein reported. There are eight shiny black legs, all originating from the cephalothorax. Frequently the leg spread may reach as much as two inches. The male, with which we are not greatly concerned because he is usually destroyed by the female soon after mating, is about one fourth the size of the female, has a slender abdomen which bears white stripes along both sides and an orange dorsal stripe. The web of this spider differs so radically from that of others that it can easily be recognized. It is composed of irregularly arranged strands which cross at all angles and in different planes and shows none of the design or symmetry displayed by the common variety of spider. (Figs. 1 and 2. Photographs by R. A. Cooley.)**

The poison glands are located in the head, the poison being conveyed through the chelicera to the fangs which are located just above the mouth and point medially toward each other. It has been determined that the injection of the poison is under the control of the spider and that the amount at any injection is quite variable, depending upon several factors which make it possible for some bites to be followed by rather mild symptoms and others by serious symptoms. The poison is usually injected intradermally but occasionally it may be deposited subcutaneously, in which case the symptoms appear more slowly.

Due to the construction of the mouth only liquid food is taken so the spider lives by sucking the body fluids from insects ensnared in its web. The nickname "black widow" has been attached because of its cannibalistic nature, whereby the female kills and eats the male. Females are also known to kill and eat each other.

Two characteristics are outstanding in this spider. They climb upward whenever possible (geotropism) and tend to seek dark places away from the light (phototropism). These features probably account for the fact that they are so frequently located in dark privies and when so found are usually hanging from the topmost part of the web just under the seat. This would also account for the fact that the most usual time of bites occurring is early morning or late evening. While the great majority of bites have occurred in privies the spider is by no means limited to this location but may be found also in old barns, woodpiles, under stones and in holes and cracks in the earth.

The black widow spider is no respecter of sex or color nor has she any obvious preference for the location of her bites. Statistics, however, show that the proportion of genital bites as compared with all others is 3 to 1. Males have been the victims in about 80 per cent of the cases. This is probably due

*Read at the Staff Meeting of the Springfield Baptist Hospital, Springfield, September 12, 1938.

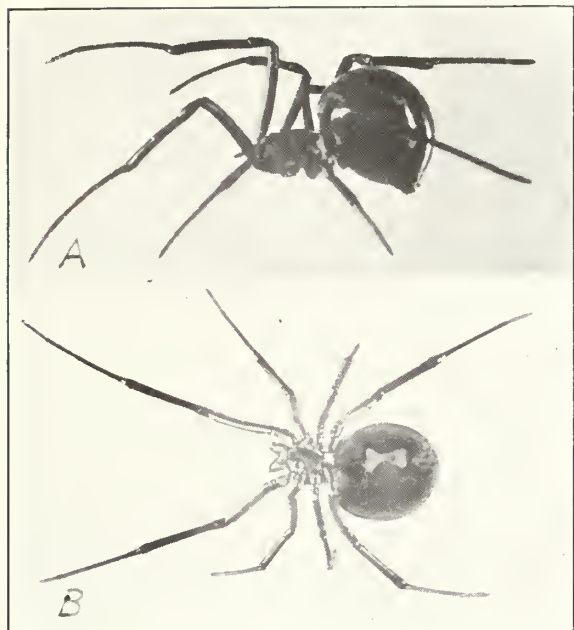


Fig. 1. A. Lateral view of mature female black widow spider. B. Ventral view of mature female black widow spider.

to the difference in anatomical construction which, in the male, allows easier access.

There is considerable variation in opinion as to the mode of action of the venom. Gray,⁹ Drake⁵ and Bogen⁷ consider it a neurotoxin while Gilbert and Stewart¹⁴ and Blair¹⁵ assume an absorption through the lymphatics.

The work of D'Amour⁴ is recommended for those desiring detailed information relative to the toxicological and immunological aspects of the venom. This study brings out that the spider venom, on a dry weight basis, is fifteen times more potent than that of a rattlesnake. It is possible to protect laboratory animals from exceedingly high doses of venom by the administration of comparatively small amounts of antitoxin from previously inoculated animals. While immunological studies with laboratory animals have been encouraging, experience so far with human subjects has not given rise to equal enthusiasm as to its possibilities. Hargis¹⁰ reports that there is no lasting immunity in human beings, that the serum from a person recently bitten may be of questionable value in alleviating the symptoms of a patient just bitten. Gray's⁹ experience would tend to bear this out as he found that increasing amounts of donor's serum had to be used with subsequent patients, when the same donor was used, in order to accomplish the same results. So far no commercial serum has been available but in 1936 Bogen and Loomis¹¹ stated that for particularly severe cases this serum might be obtained from the Los Angeles General Hospital, F. E. D'Amour, Denver, or the Olive View Pathology Laboratory. They believe that the results are encouraging but as yet not conclusive, feeling that

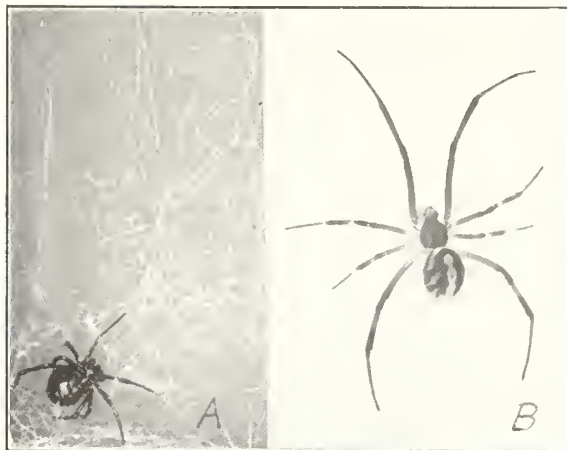


Fig. 2. A. Female in web, showing characteristic construction of web. B. Dorsal view of mature male black widow spider.

their general use in all cases is not absolutely necessary.

Hargis¹⁰ states that there is a seasonal increase in the activities of the black widow spider. While bites have been recorded in every month of the year, by far the greater number have occurred during the warm months with August and October having the greatest incidence.

Symptoms following the bite of a black widow spider may vary widely, depending on the location of the bite and the amount of toxin introduced but, as a whole, they tend to follow the same general course. The symptoms are usually severe, frequently alarming and many times misleading unless one has the possibility of spider bite in mind.

Patients may or may not realize that they have been bitten. It will be seen that this fact could have a decided bearing upon subsequent events. When the bite is felt it may appear insignificant, being momentarily a sharp, stinging pain, much the same as that produced by a needle prick. Examination of the bite may reveal a small red spot, pin point in size, which is not elevated and which disappears rapidly, usually being completely absent within four hours. It is equally possible however for no evidence of the bite to appear. Within from fifteen minutes to several hours the symptoms begin to appear, the location of the bite determining this to some extent. If the bite is located on the genitalia or buttock the onset is marked by severe, sharp, stinging pains in the lower back and sacral region. If the bite occurs on the lower extremity the same symptoms are felt, first in the extremity, gradually extending to the back and sacral region. If the patient is able to walk at this time a characteristic gait will be noticed. He is usually bent forward with the hands held against the abdomen and motion of the legs may be accomplished slowly and with difficulty. Pain becomes more severe and spreads to the lower abdomen. The intensity of the pain increases and the patient is restless. The pain extends over the entire abdomen and at times

involves the chest and precordium to some extent. During this time the pain extends down the legs and shortly involves the entire extremities. The pain becomes excruciating, the patient writhes and tosses in bed, exhibits great thirst and anxiety and respiration becomes rapid and shallow. Dyspnea may be marked. Perspiration is profuse. The abdomen presents a board like rigidity as seen in acute surgical conditions of the abdomen but presents no localized area of tenderness. There is headache and pain in the back may extend into the neck. The pain, generalized over the abdomen and associated with marked rigidity of the abdominal wall, may closely simulate many types of acute abdominal conditions the indications for which may often be surgical intervention. Drake⁵ mentions this possibility and discusses points in the differential diagnosis. Hagan⁶ reports one case which seemed to have many of the features of ruptured gastric ulcer and was actually prepared for operation although not enough additional signs were present to substantiate the diagnosis. It was then discovered that there was an edema and redness of the eyelids with swelling about the mouth. Questioning about spider bite revealed a positive history but the patient had attached no particular significance to this. Ginsberg⁷ calls attention to the importance of a correct diagnosis to avoid unnecessary surgery and points out that while spider bites are most likely to be confused with ruptured gastric ulcer or duodenal ulcer, they may also closely simulate lobar pneumonia, angina pectoris, coronary thrombosis, renal colic, enteritis, acute appendicitis, volvulus, acute pancreatitis, food poisoning and many other disease entities. Walsh and Hargis⁸ report twelve cases and stress the similarity of symptoms to major surgical conditions. They believe surgical intervention has been a frequent happening in the past due to lack of knowledge on the part of the profession.

Perhaps the most common surgical condition with which these cases might be confused is ruptured gastric or duodenal ulcer. A comparison of high points in the differential diagnosis of these two is given.

Table 1. *Symptoms*

Spider Bite	Perforated Ulcer
History of bite positive or negative	Negative
Ulcer history negative	Positive
Pain spreads from bite	Knife-like pain at site of rupture
Mild or no collapse	Collapse
Temperature variation insignificant	Subnormal temperature
Pulse slow	Pulse usually normal
Abdomen rigid	Abdomen rigid
Cramps in extremities	No cramps
Roentgen ray, no air bubble under diaphragm	Bubble present in most cases
Patient moves about	Patient very quiet

It is generally agreed that the blood pressure variation is not significant. While there is usually a slight leukocytosis with increase in polymorphonuclears this is not particularly significant except as it may serve to differentiate the condition from other confusing factors. Bogen⁷ brings out an im-

portant consideration in the differential diagnosis when he says, "In the differential diagnosis a history of a bite or the seeing of a spider, although helpful, is not essential, either in the making or exclusion of the diagnosis, nor should the presence of an ulcer history or the possibility of eliciting other complaints by leading questions exclude the possibility of coincident arachnidism."

As has been the history of the development of treatment in many new diseases, a great number of different remedies have been tried. Up to the time the first of these studies was made almost everything had been used in the treatment of this condition. Bogen¹ mentions some sixty remedies, a few of which were: caffeine, alcohol, spirits of ammonia, caustics and cautery, atropine, adrenalin, strychnine, enemas, lavage and soda bicarbonate. As more study has been made of the condition and more cases have presented themselves a greater opportunity has been afforded for the development of better therapy. While there is still no specific treatment for the bite, we have at present several forms of treatment which, in most cases, are decidedly beneficial and in some hands have given complete relief.

Treatment must be designed to accomplish (1) relief of pain, (2) elimination or neutralization of the toxin and (3) general supportive measures.

For the relief of pain, morphine sulphate in large doses may be needed, $\frac{1}{4}$ to $\frac{1}{2}$ grain in some instances being required every four hours. When proper relief is not obtained from other measures it should not be withheld although caution should be used in its administration. Magnesium sulphate, 10 per cent, in the amount of 10 cc. intravenously, has found favor with some but most of those now using it have combined it with 50 per cent strength glucose and feel that the results are superior to those of the magnesium sulphate alone. More recently 10 per cent calcium gluconate has been given intravenously or half intravenously and half intramuscularly and repeated as needed. This has been found to give relief more effectively than magnesium sulphate. Nearly all workers agree that calcium gluconate has a definite place in the treatment of this condition.

At this point it would be well to emphasize that care must be exercised in the administration of any calcium salt intravenously. Bower and Mengle¹⁶ state that calcium administered intravenously will kill a digitalized patient and have substantiated their statement with a report of two cases. Although the gluconate is an improvement over other calcium salts it still may not be given with impunity. Spinal puncture and withdrawal of from 10 cc. to 20 cc. of fluid has been reported to be effective not only for relief of pain but for acute urinary retention as well. Most authors agree that hydrotherapy in the form of hot baths gives relief in large measure. In fact Blair¹⁵ felt that he obtained greatest relief from the use of baths. The use of convalescent serum, while it would appear to be an ideal

measure, has not been successful in all hands. Drake² regards his results as unsatisfactory. Gray⁹ reports relief in fifteen minutes and complete absence of symptoms in three hours in a case which was given 200 cc. of immune serum intramuscularly. He also reports another case which, in spite of the administration of 400 cc. of immune serum, continued to have severe pain, nausea and vomiting for six days. Bogen² has used convalescent serum in amounts from 2 cc. to 35 cc. with the administrations occurring on an average of eight hours after the bite. This has resulted in substantial relief soon after the administrations.

Of the two cases herein presented, in the one which received serum the results were most gratifying. While results in general are not conclusive they offer encouragement. Local treatment at the site of the bite should be limited to the application of some mild antiseptic. Any measures such as local incision or cautery are to be condemned as they only serve to increase the dangers of local infection.

In spite of the potency of the venom of the black widow spider the majority of patients recover. Bogen² gives the mortality as 5 per cent. Drake's⁵ patients generally were out of difficulty in two or three days. Patients of Ginsberg⁷ averaged thirty-seven hours of hospitalization. Following recovery from the bite it is not uncommon for residual symptoms to be noted in the form of numbness, tingling, general weakness and transient muscle spasm, the latter being the most troublesome. These may persist for weeks or sometimes months. The author had excellent results with calcium gluconate, 10 cc. intravenously, given on two successive days, with complete relief of the irritation.

CASE REPORTS

Case 1. Mrs. O. W., white female aged 47, came to my home at 9:30 p. m., June 24, 1938, stating that about thirty minutes previously while at an outside toilet she noticed a stinging sensation on the right buttock which lasted only momentarily. She dismissed the matter as without significance but within fifteen minutes noticed more severe, stinging and burning pain in the sacral region. Within another ten minutes she began to have cramping, stinging and burning pains which seemed to come from deep in the pelvis and there was pain in both inguinal regions. This alarmed the patient and she walked the two blocks to see me. On entering the house she held to her daughter with one hand while the other hand was held flat over the lower abdomen and she was slightly bent forward. Examination of the site of the bite showed it to be located on the right buttock at about the level of the ischial tuberosity and, contrary to the usual descriptions, consisted of a central area about 1 centimeter in diameter, rather pale in color and slightly indurated as is seen in a hive. This was surrounded by an area of marked erythema about 1 inch in width. The entire area felt hot. She did not, however, complain of any pain at this site. Abdominal examination did not, at this time, reveal any localized tenderness and there was no evidence of rigidity. Feeling that this was perhaps the reaction to the bite of some insect to which she was unusually susceptible and that by morning she would recover from the effects, she was given a mild sedative and sent home.

Within ten minutes I was summoned to see the pa-

tient. She stated that on the way home she had been seized with such severe cramping pains in the legs that she was barely able to get home. She was, by this time, in bed and was complaining of stinging, burning and cramping pain in the lower half of the abdomen and in the legs down to about the calf. Examination revealed that the irritation at the site of the bite had almost completely disappeared. There was profuse lacrimation but the patient denied that she was crying. Rigidity was marked in the lower half of the abdomen and to some extent in the upper half. Reflexes were normal and there was no palpable evidence of muscle spasm in the extremities. The blood pressure was 165/90. The pulse was 70 and temperature 99.4 F. The irritation was continuing to extend and increase in severity. Morphine sulphate, $\frac{1}{4}$ grain, was given hypodermically. By this time the patient was tossing about, first straightening out, then flexing the thighs and rubbing the limbs. Profuse perspiration had now appeared and water was requested every few minutes. The pain began to extend up the back and involved the entire abdomen. Headache was pronounced and there was beginning difficulty in breathing. Every few minutes she would, with arms extended, place the hands upon the thighs and pushing with arms and legs give a deep gasp for air. Examination, which had previously given no evidence of circulatory distress, now revealed extrasystoles which appeared at variable intervals. She complained of sub-sternal discomfort. Within fifteen minutes after the administration of the morphine the pain had extended into the neck and she "felt that her legs would burst wide open." She also described the sensation in the feet as "feeling as though they were being burned with hot irons." With involvement of the entire abdomen there was frequent complaint of the most severe distress under the right costal margin. Palpation revealed decided tenderness in the gallbladder area. This remained extremely tender. Thirst continued and nausea with vomiting developed. The vomitus consisted of a large amount of dark greenish brown bile which was bitter. Having treated the patient for gallbladder colic on previous occasions, this was not surprising. Had it not been for the pain in the sacral and pelvic regions, with radiation down the legs and the obvious spread of the pain from the pelvis upward, it would not have been difficult to mistake this for a case of acute biliary obstruction.

All this had transpired in about twenty minutes from the time of my arrival at the patient's home and since she had so far received no relief it was felt necessary to administer an additional $\frac{1}{4}$ grain of morphine sulphate hypodermically. Within another fifteen minutes she began to get relief from the pain but the heart continued to show extrasystoles. During the night it was necessary to repeat the morphine in the amount of $\frac{1}{2}$ grain. At 6 o'clock on the morning of June 25 the patient was awake and suffering severe pain in the abdomen, back and lower extremities. She was given 10 cc. of 10 per cent calcium gluconate intravenously but with great caution because of the already irregular heart action. This resulted in slight improvement but at 7:30 a. m. she was again suffering intensely. Morphine sulphate, $\frac{1}{2}$ grain, was given hypodermically. At noon she was still having pain in the extremities which, after the administration of 10 cc. of 10 per cent calcium gluconate intravenously, was relieved of pain except from the knees down. At 4 p. m. she was having some pain and was restless and was given $\frac{1}{2}$ grain morphine orally. At 8 p. m. she was again in pain and had rested little during the afternoon. It was found, at this time, that she was unable to void and it was necessary to catheterize her. About 450 cc. of urine was obtained which was normal. The administration of morphine, $\frac{1}{4}$ grain, now gave considerable relief. Menstruation had begun during the day and appeared to be unaffected throughout its course by the effects of the bite.

On June 26, by 2 p. m. the patient said she felt much better and it was not necessary to administer further opiate. The improvement, though slow, was continuous and on July 13 she felt able to be out of bed. This was attended by some stinging pains and soreness of the legs and feet and an occasional extrasystole. She continued to be up and about the house but the residual symptoms seemed to remain. On July 29 she visited the office where, in view of her continued complaint of aching of the legs and back, she was given 10 cc. of 10 per cent calcium gluconate intravenously with instructions to return the next day if improvement resulted. She returned with practically no discomfort and said she thought one more treatment would completely relieve her. With repetition of the calcium gluconate she has been entirely free from symptoms. Although search was made the spider was not found.

Case 2. Mrs. H. A., white female, aged 24, went to the outside toilet about 7 p. m. on July 14, 1938. She returned to the house without noticing any unusual occurrence but within fifteen minutes she began to have sharp, stinging and burning pains in the sacral region which soon spread to the pelvis and inguinal regions. Having heard of the other reported case the husband made an investigation and noticed the site of the bite which was immediately reported. The patient was seen within twenty minutes of the time of the bite and examination revealed the local injury which was identical with that of the first case. It consisted of a small pale central area which was surrounded by an area of erythema about 1 inch wide, had the appearance of a hive and the entire area was hot. No pain was present at the site and the patient could not recall having felt the bite occur. She was put to bed, much to her displeasure as little significance was attached to the incident. While preparations were being made for treatment the spider was located and captured from under the toilet seat on the right side near the front. This corresponded to the location of the bite. This spider was readily identified as the *Latrodectus mactans*, having the hour glass marking on the ventral surface of the abdomen and a small red dot on the dorsal surface just above the spinnerets.

While the first patient was being brought to the home of the second patient the latter began to develop severe pain in the lower half of the abdomen, sacral region, thighs and back which she described as sharp, stinging, burning and at times, cramp like. The pain became more severe and spread down the legs to the feet as well as upward in the abdomen. The blood pressure was 150/90, pulse 72 and temperature 100.2 F. Marked rigidity was noted over the lower half of the abdomen. She was perspiring freely and asked for water frequently. No local tenderness could be detected in the abdomen. Lacrimation was profuse with tears rolling down the cheeks and the conjunctiva was injected much as in the beginning of an attack of hay fever. Approximately thirty minutes after the first symptoms had been observed she was given 20 cc. of whole blood into the gluteal muscle from patient 1. Within ten minutes the symptoms had begun to subside and she said she felt much better. After thirty minutes she was continuing to improve but in spite of this she was given 10 cc. of 10 per cent calcium gluconate intravenously and morphine sulphate, $\frac{1}{4}$ grain, hypodermically. The patient went to sleep but was awake by midnight when she was given another hypodermic of $\frac{1}{4}$ grain morphine which gave relief. On the morning of July 15, she complained of slight muscular pains in the back, legs and abdomen but stated they were not severe. During that day she took orally two $\frac{1}{4}$ grain tablets of morphine. On July 16 she still experienced some pain in the back and abdomen, became nauseated and vomited a rather large amount of greenish brown bile. There had never been any localized tenderness in the gallbladder region and there is no history of anything in the nature of a

gallbladder attack. During this morning there developed an acute urinary retention and catheterization was necessary, following which no further difficulty was noted. While some residual symptoms were present she continued to improve and on July 25 she got out of bed and was up and about. This was accompanied by a return of severe aching and cramping pains in the legs and back. It was also noted that the skin over the lumbosacral regions, hips and thighs both anteriorly and posteriorly was extremely painful, the slightest touch causing her to cry out with pain. She was given 10 cc. of 10 per cent calcium gluconate intravenously with considerable relief and a repetition on the following day resulted in complete absence of the symptoms. No further treatment has been necessary as she has remained entirely symptom free. Questioning as to menstrual history revealed that the period following the bite began three days early. Whereas she usually had considerable flow and severe dysmenorrhea, this time it was scanty and unaccompanied by any pain.

COMMENT

The two cases presented are unusual and interesting from several points of view. Case 1 could not be proved to have been caused by the bite of a black widow spider although symptomatically it ran true to course. The use of serum from case 1 on case 2 with marked and prompt relief of symptoms is believed to confirm the diagnosis in case 1. It is also believed that the use of convalescent serum in this case was responsible for converting what would have been a severe case into one of comparatively mild degree. Acute urinary retention, which is not a common occurrence in these cases, was observed in both but cleared up spontaneously without the necessity of spinal puncture. In both cases there was profuse lacrimation, which so far as can be learned, has been reported to occur only in experimental animals. It cannot be too strongly stressed that the symptomatology in these cases can be easily misleading in making a diagnosis. Sedatives and various forms of physiotherapy are generally advocated for residual symptoms and it is interesting to note the ease with which they were controlled by the use of calcium gluconate. The character of the bite and reaction at the site was unusual in both cases. It is reported that they are either entirely absent or may appear as small pin point reddened areas. Both of these cases showed marked reaction at the site.

SUMMARY

1. The *Latrodectus mactans* (black widow spider) is probably much more common than is generally realized.
2. The seriousness of the bite of the black widow spider warrants a more detailed knowledge of the insect by both the profession and public.
3. A review of many of the important characteristics of the spider is given.
4. Symptoms following the bite are presented in detail.
5. Similarity to surgical conditions is discussed with points on differential diagnosis.
6. Treatment is presented with comparative values of different methods.

7. Two cases of black widow spider bite, the first to be reported from Missouri, are given and their unusual features pointed out.

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*Personal communication from Dr. E. J. Goodwin, Editor, *Journal of the Missouri State Medical Association*, reporting no cases recorded in Missouri since 1936. D'Amour⁴ reported no cases from this state to 1936.

**The author wishes to thank Cornelius B. Philip, Ph.D., Associate Entomologist, United States Public Health Service, for his kindness in furnishing and permitting the use of the excellent photographs.

REACTIONS TO PROTAMINE ZINC INSULIN

The redness and swelling that occur at the site of injection in some patients treated with protamine zinc insulin were found to be due primarily to errors in injecting the drug, Richard A. Kern, M.D., and Paul H. Langner, Jr., M.D., Philadelphia, report in *The Journal of the American Medical Association* for July 15.

Seventeen of the 104 diabetic patients that they studied complained of these reactions, but the Philadelphia investigators found that in only one of these cases were the reactions due to sensitivity to insulin, that is allergy. In the remaining sixteen patients they found that the redness, swelling and soreness at the site of the injection appear to be due not to sensitivity but to errors in technic of injection. These errors include: usually a too superficial injection of the material (into the skin rather than under it), irritation by alcohol when that substance has been used to sterilize the hypodermic outfit, and occasionally infection, resulting from faulty aseptic technic. The errors have occurred as a rule when the material was injected by the patient himself.

The 100 nondiabetic (presumably normal controls) and the eight allergic persons whom the authors also observed for any signs of a reaction after the injection of a protamine solution did not experience any bad effects.

Drs. Kern and Langner also encountered two diabetic patients in whom the use of protamine zinc insulin was followed in from five to eight days by the development of true sensitivity to insulin. Therefore the possibility of the development of insulin sensitivity during the use of protamine zinc insulin should be kept in mind.

HEART DISEASE COMPLICATED BY SURGERY

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The question of increased surgical risk in patients with chronic heart disease has occupied a fairly prominent place in medical literature for the last thirty years. Obviously, the borderline or frankly decompensated heart may be subjected to strain only with much danger. The patient with a well compensated heart, even though symptomless at his ordinary work, also has a lowered circulatory efficiency as shown by a lower cardiac output, increased pulse rate and relatively higher oxygen consumption (Nielsen¹).

Any procedure then that places a burden upon the chronically diseased heart may cause outspoken failure depending upon the margin of compensation and the degree of strain imposed. On the view that anesthesia and major surgery always increase the circulatory load there was no agreement in the literature. Some fifteen opinions on this question from surgeons, internists, physiologists and anesthesiologists are amply summed up by Marvin² in the statement:

I have been impressed by the frequent allusions to the burden imposed upon the heart by operative procedures, and especially impressed by the almost routine use of the phrase "stress and strain." The phrase has little to commend itself. . . . And our question as to the burden thrown on the heart is largely answered when we say that it is perfectly possible to subject a patient to anesthesia and operation for a period of several or many hours without any change in the normal mechanism of the heart, without venous engorgement, and without any significant change in the heart rate or blood pressure. . . . No matter what size the heart may be, no matter what thrills or murmurs may be present, and no matter in what direction they are transmitted, if the patient is leading a life of moderate activity without symptoms, the heart may be regarded as the equivalent of a normal one, and it may be safely assumed that it will behave properly during operation and anesthesia.

There have been several extended analyses of the surgical risk in heart disease. In 1930, Butler, Feeney and Levine³ examined 414 cases of organic heart disease complicated by surgery from Peter Bent Brigham Hospital. Twenty-eight unexpected deaths were considered of cardiac cause, giving a total increased mortality of 6.3 per cent. Chronic valvular disease carried an increased mortality of 2.1 per cent and auricular fibrillation 3 per cent. The greatest risks were found in angina pectoris with an increase of 7.7 per cent in mortality; coronary thrombosis, 44.5 per cent; congestive heart failure, 17.1 per cent; heart disease with nephritis, 14.8 per cent. They concluded, "In most types of heart disease the surgical risk is not appreciably greater than in the normal person. In some in which the risk would be great, it may be diminished by proper preoperative diagnosis and therapy."

Lewis⁴ believes that the surgical risk in chronic valvular disease, when the patient is compensated at light work, is not greater than for a normal

heart. He rates the increased risk as follows: mild angina, slight; severe angina, 10 to 20 per cent; syphilitic aortitis, 10 to 20 per cent; coronary thrombosis, severe; congestive heart failure, moderately increased.

In 1935 Pratt⁵ reported a series of nineteen cases of complete thyroidectomy for advanced heart disease without a fatality. The patients were given morphine and avertin by rectum, plus light nitrous oxide or local anesthesia. Electrocardiograms in each case showed myocardial degeneration. Three of the group had definite coronary artery disease and twelve showed marked decompensation. Four had syphilitic heart disease. This excellent result would be difficult to duplicate, yet it shows what can be expected when careful work is done.

Anesthesia presents almost no problem in the patient with an abnormal heart. We know that, in competent hands, most anesthetics are safe; this applies to diseased as well as to normal hearts and is emphasized by Lidwill's⁶ comment: "How close to death a patient may go with cardiac failure and yet be able to take an anesthetic is almost incredible."

There are certain generalizations, however, which should not be overlooked in regard to the selection and use of the anesthetic. Horine⁷ believes local anesthesia is safest and should be used when possible. This does not include, of course, spinal anesthesia which is noted for its almost constant lowering of the blood pressure. Ether, by the open drop method, is reliable. Ethylene-oxygen mixture does not increase the pulse rate, does not affect the blood pressure and the excitement stage of induction can be entirely eliminated. A little ether may be added and the oxygen content raised to a safe percentage.

Anoxemia should be carefully avoided. Ward and Wright⁸ made an electrocardiographic study of the human heart during and after pure nitrous oxide anesthesia. They found T wave changes which they felt justified the conclusion that the acute anoxemia thus produced seriously depressed the ventricular myocardium. This change is of temporary nature, and recovery is rapid, but even in healthy subjects recovery was sometimes not complete for several minutes. It is possible that in patients with heart disease the immediate changes might be of a more serious nature.

Many anesthetics tend to produce cardiac irregularities which from the standpoint of cardiac risk do not alter the prognosis. In choosing the anesthetic one might best select either local injection of novocain, drop ether or one of the gases, preferably ethylene, to be used in cases with heart complications. But it is important to remember that the safest anesthetic is the one with which the anesthetist is most familiar; the skill of the anesthetist is of the greatest importance.

These studies indicate that the danger of surgical procedures in cases with chronic cardiac conditions has been overrated. As a supplement to these

studies, an analysis was made of forty patients with chronic heart disease submitted to major operative procedures in St. Louis City Hospital. Of these forty, I have seen ten personally. The remaining thirty cases were found among 700 routine surgical, gynecological, genito-urinary and ear, nose and throat operative records. Nine were classified as rheumatic heart disease, seventeen as arteriosclerosis, eleven hypertension, one congenital, one hypertension with nephritis, and one syphilitic aortitis.

Originally, I wished to determine the operative mortality among these patients. It soon became apparent that the gross mortality rate would be misleading in formulating the degree of risk because so many patients recovering from operations presented insufficient recorded evidence to prove that they had heart disease. Thus the series became unduly weighted with the severer and fatal cases. Twenty-five per cent of the patients had been submitted to autopsy.

Eighteen patients (45 per cent) died either at operation or in the postoperative period. In trying to evaluate these deaths, it was felt that only two were cardiac due to causes immediately precipitated by surgery. The others died of complications either many days after the operation or had enough additional pathological conditions at the time of operation to cause death. The latter deaths were classified "expected," as suggested by Levine.³

Taken altogether, probably the increased surgical risk in heart disease is not over 5 per cent. Surely if the proposed surgery is at all indicated, and if the proposed operative relief outweighs the slightly increased risk, the patient should not be denied the benefit of surgery. However, this increased risk is small only if proper preoperative diagnosis and therapy are carried out. In a discussion of the subject thirty-seven years ago, Ochsner⁹ emphasized this point: "I think it would be unfortunate should surgeons receive the impression that patients suffering from heart disease are especially safe. I believe they are safe because they are considered especially unsafe."

Thus the patient with an obvious valvular defect or marked hypertension is relatively safe in surgical hands. The greatest risk is found in the group of cardiac patients that present few gross findings, particularly those with degenerative changes. Questionable angina pectoris, slight elevation of blood pressure or doubtful cardiac enlargement on percussion were points rarely followed up in these cases. The two unexpected deaths from cardiac cause were among these. The antemortem diagnosis of coronary sclerosis is often difficult or impossible to make, yet it is definitely worth while to attempt it. Certainly electrocardiographic evidence of an old myocardial infarction, the presence of an M or W complex in lead 2, or a complete bundle branch block in a patient in the coronary age group, would make one cautious about elective surgery. Minor T wave changes are, of course, subject to individual interpretation.

Master, Dock and Jaffe¹⁰ have recently written on postoperative coronary occlusion. They feel that when coronary sclerosis is present surgery should not be undertaken lightly. Drop in blood volume and blood pressure during the operation were believed to be possible precipitating factors in occlusion. Probably because the diagnosis of arteriosclerotic heart disease had not been made preoperatively in my cases, spinal anesthesia was used on 32 per cent. In a few instances the blood pressure remained rather constant but in the majority there was a marked fall in spite of ephedrine stimulation.

Although we most often neglect the arteriosclerotic type of heart disease, yet it is entirely possible that physical signs of severe rheumatic infection may be overlooked because the signs present, equivocal in themselves, are ignored. As has been pointed out, the safety of the patient depends upon the correct evaluation of these minimal findings. The anesthetic agent is then chosen more wisely, intravenous fluids given more carefully and preparation for surgery rendered more secure by digitalis when indications for its use are present. Many cases of postoperative decompensation, precipitated by wound infection or pneumonia, may be averted by the use of digitalis if given at the earliest sign of failure.

One other important point should be borne in mind when cardiac disease has been diagnosed; namely, the position of the patient during operation. It has been estimated by White¹¹ that the heart's work is increased by 25 per cent when the patient changes from a sitting to a lying position due to loss of the effect of gravity in returning blood to the heart from the head, neck and upper thorax. Gynecological surgery is usually done with the patient in the Trendelenburg position, in which the head and thorax are below the level of the pelvis and in which the elevated diaphragm disturbs the heart's position and prevents adequate pulmonary excursion. It is frequently found to embarrass the circulation of a normal individual.

In summary, patients with compensated chronic heart disease stand surgery well with only a slight increase in operative risk. This slight risk may be considerably lowered by proper appreciation of the specific cardiac defect and attention to the simple physiological principles involved in maintaining a normal circulation.

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BILATERAL ANEURYSMS OF THE COMMON ILIAC ARTERIES

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AND

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A case of bilateral aneurysms of the common iliac arteries revealed by dissection in the anatomical laboratory of Prof. Robert J. Terry, Washington University, is reported. A search of the literature has revealed only two other cases of bilateral aneurysms of the common iliac arteries.

The present report is based on the findings in the cadaver of an obese white female, aged 62 years, 5 feet, 5 inches in height. For several years before death the woman was employed as a laundress in the St. Louis Sanitarium of which she was an inmate.

Description of the Aneurysms.—Upon opening the abdominal cavity and examining the viscera, retroperitoneal masses were observed at the level of the fifth lumbar vertebra and sacral promontory. Removal of the intestines and reflection of the peritoneum disclosed two saclike structures which were found to be continuous on either side with the respective common iliac arteries.

The left common iliac artery, just caudad to the bifurcation of the abdominal aorta, presented a large sacciform dilatation, and the right common iliac artery, a smaller fusiform one. On the latter vessel, 1.9 centimeters inferior to the distal end of the main aneurysm, another swelling was observed. Palpation revealed calcium plates in the walls of the two main aneurysms; however, there were no gross plates present in the wall of the secondary aneurysm. The walls of the sacs were examined macroscopically and a decrement in the thickness was hardly discernible. Certainly rupture was not impending. Microscopic examination disclosed that the media of the vessel wall contained calcium deposits as well as cholesterol clefts, and that the walls had undergone disorganization, but had not decreased in thickness. The relative strength of the coats indicated that the aneurysms were formed by a progressive dilatation rather than by a traumatic rupture.

Measurements of the common iliac arteries and of the aneurysms were as follows: (1) length of common iliac artery: left 9.1 cm., right 7.1 cm.; (2) length of common iliac artery to proximal extremity of aneurysm: left 0.3 cm., right 0 cm.; (3) width

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of common iliac artery at its origin: left 1.2 cm., right 1.5 cm.; (4) width of common iliac artery at its termination: left 1.7 cm., right 1.5 cm.; (5) length of aneurysm: left 7.1 cm., right 4.8 cm.; (6) width of aneurysm: left 4.4 cm., right 2.9 cm.

By means of a transverse section of the left mass a consolidated clot occupying the greater part of the lumen of the sac was exposed. The clot was laminated and consisted of alternating red and white strata and, although large, did not obliterate the lumen. This statement is based on the presence of the color injection mass in the lumen of the vessel, its distribution throughout the arterial system both superior and inferior to the level of the aneurysms, and the absence of a well developed collateral circulation.

The clot contained in the smaller right aneurysm was as if it had just consolidated and was not yet organized. Here, also, the lumen was patent. Just distal to the main mass on this side was a smaller inconspicuous nodule, an indication of a potential weakening in the wall of that vessel. No consolidated clot was contained in this small sac. These aneurysms were of the nondissecting type.

Testing for the presence of *Spirochaeta pallida*, Dr. H. A. McCordock examined sections of the thoracic aorta, the wall of the aneurysmal sac and a portion of the vessel that constituted a transition from the vessel proper to the aneurysm. The findings were negative.

REPORT OF CASE

Antemortem History.—The personal history was investigated in the files of the St. Louis Sanitarium where the patient spent the last twenty-seven years of her life. Her mental condition was diagnosed as simple dementia praecox. Her physical record was uneventful (with the exception of diphtheria which she had as a child) up to a few months before her death. She was married and had borne three children. There was no history of syphilis or of antiluetic treatment.

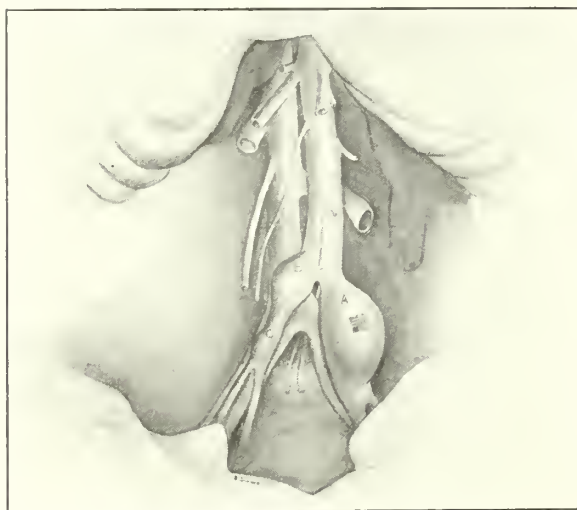


Fig. 1. Drawing of aneurysms and related vessels. (A) Aneurysm of left common iliac artery (window cut in wall to show thickness and lamination of clot). (B) Aneurysm of right common iliac artery. (C) Aneurysmal swelling in right common iliac artery.

On July 2, 1937, the patient first complained of swelling of the lower extremities and stated that she had had nocturia for several months. She had no chills or fever, no dysuria, no hematuria, no nausea or vomiting. On July 31 the patient was received in the female hospital division from the asylum section. She complained of weakness, edema of the ankles and gradually increasing swelling of the abdomen. The weakness became progressively worse and the abdominal swelling much more noticeable. She complained of vague pains under the costal margins. Physical examination at that time revealed that the abdomen was enlarged and tense. There was a slight tenderness with deep palpation in the right upper and both lower quadrants. There was a palpable mass in the right lower quadrant which descended with inspiration. The liver was enlarged about 4 centimeters below the costal margin.

Several days later the patient vomited a few times. The abdomen at that time and for more than ten days following was distended greatly with fluid and gas. The edema of the feet had almost subsided. The patient's condition remained the same until August 17 when during the afternoon the heart tones were found to be quite weak and distant, the pulse was 110 and slightly irregular. She expired at 6:15 p. m.

Postmortem.—Primary cause of death was listed as myocarditis with bronchopneumonia as the contributory cause. Dissection revealed a small inguinal hernia, abdominal and pleural adhesions, fatty degeneration and enlargement of the liver, enlargement of the spleen, pleural consolidations, hyperostosis frontalis internus, a slight enlargement of the left ventricle of the heart and the bilateral aneurysms described above.

DISCUSSION

It is estimated that aneurysms are responsible for 0.3 per cent of the deaths in America (Garland, 1932).¹ However, aneurysms of the common iliac artery are very rare. Garland found one case of common iliac aneurysm out of 178 aneurysms in 12,000 autopsies (and this was not bilateral); Matas (1909)² records two cases of common iliac aneurysms in 172 cases of aneurysms.

On the basis of Matas' classification of the types of aneurysms, the aneurysms herein reported may be classified as true, nondissecting ones of arteriosclerotic origin. Syphilitic origin is rejected. Sections of the wall of the sac and of the transitional portion of the vessels were negative to syphilitic examination; that is, there was neither lymphocytic infiltration nor hypertrophy of the adventitia. An additional and perhaps related factor is the small inguinal hernia which was observed on the left side of the body during dissection. This point is not altogether out of line, for Matas has considered intra-abdominal pressure such as that exerted by wrestlers and individuals doing strenuous physical work as a cause of such an arterial dilatation.

Other nonsyphilitic aneurysms of the common iliac artery have been reported in the literature, but they are comparatively rare. The following cases of common iliac aneurysm suggest the frequency since 1925. Barber (1925)³ reported a case of atheromatous bilateral aneurysms, and Goldzieher and Joachim (1929)⁴ presented another bilateral case in which syphilis was denied and arteriosclerosis attributed as the cause. A female patient with syphilis aged 38 years was found by LaRoque

(1931)⁵ to have an aneurysm of the common iliac artery. Hennig (1932)⁶ recorded such an involvement of the common iliac artery seven years after trauma. Another case of aneurysm of the left common iliac artery which involved arteriosclerosis was mentioned by Longo (1933).⁷ Aspinall (1934)⁸ reported the case of an idiopathic aneurysm of the right common iliac artery accompanied by bilateral aneurysms of the femoral arteries. A mycotic aneurysm of the right common iliac artery was investigated by Gage (1934).⁹

The above seven cases of common iliac defect of this nature are distributed in the following manner: one of syphilitic origin, three arteriosclerotic, one traumatic, one mycotic and one idiopathic.

SUMMARY

A case of arteriosclerotic bilateral aneurysms of the common iliac arteries is presented. There was no history of syphilis or of trauma.

The authors desire to express their appreciation to Dr. Mildred Trotter under whose direction the report was made.

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BROMIDE INTOXICATION INVOLVING BRAIN AND SKIN

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Several of the salts of bromine continue to be prescribed extensively for a large number of neuropsychiatric disorders despite the increasing use of barbituric acid derivatives for the many nervous and mental states, especially for the epilepsies. For a short time following the discovery of bromine by Balard in 1826, potassium bromide was used by physicians as an alterative. With a prompt recognition of the sedative action its use soon was restricted essentially to nervous and mental afflictions, especially the numerous spasmodic states. Lolock in 1853 warmly advocated prescribing bromides for epilepsy.

It has been pointed out in medical literature from time to time for a number of years that toxic manifestations can appear when any one of the many bromine preparations is used. As a rule more than 3 grams daily of sodium or potassium bromide is taken for a few weeks or longer before alarming symptoms become apparent. Gowers, Spratling, Skoog, Cushny, Sutton, Wile, Kraepelin, Bumke and others have called attention to these possibili-

ties; yet we believe the use and possible abuses of the drug are not adequately appreciated. Some unusual toxic syndromes go unrecognized far too often.

The many possible toxic manifestations gradually came to the notice of the medical profession. The skin is an important indicator of saturation or developing toxic symptoms. Bromine acne is well known but other dermal lesions are occasionally observed. Toxic syndromes involving the central nervous system are seen quite often without striking skin lesions. Despite all our knowledge relative to the toxic threshold and manifestations, careless use of the bromides is encountered too frequently. In particular institutions caring for various nervous and mental disorders including especially the epileptics and alcoholics, and private practitioners come in contact with this condition. Not all these incidents arise from prescriptions by physicians. A large number of nostrums contain more or less bromide and many direct purchases by lay individuals are well known.

Potassium bromide may be more toxic despite its lower bromine content, namely 67.15 per cent, than the sodium salt containing 77.62 per cent. From observations of patients the author has found that the potassium salt presents greater possibilities for intoxication than the sodium salt. A number of experiments on dogs have been carried out, observing involvement of the nervous system, temperature and the mucosa of the stomach. We also believe that the sedative action of the sodium salt is comparatively greater on account of the 10.47 per cent excess of bromine. Among the many bromide preparations on the market might be mentioned also ammonium bromide with 91.03 per cent of bromine, lithium with 91.92, strontium with 64.6, calcium with 79.96, and the trivalent gold salt with 54.87 per cent. Hydrobromic acid is nearly 100 per cent bromine and should never be prescribed.

Not all of the toxic syndrome observed in the patient can be ascribed always to the halogen element. A portion may be attributed at times to the combinations as such. Also the impaired general metabolism may allow an excess of several different toxins to be inadequately eliminated. A small amount of physiologic bromine may be found in all tissues and various secretions. However, it is generally conceded that this halogen has a special attraction for the central nervous system, especially the brain. It may be demonstrated in the nerve cells and fibers as well as generally in the secretions, spinal fluid and blood.

CASE REPORTS

Case 1. P., a physician, aged 66, had been a well balanced, fine general practitioner for many years. He entered St. Luke's Hospital on November 30, 1936, on the service of Drs. R. L. Sutton, Jr., and Skoog. Dr. Sutton diagnosed tinea of hands with chronic roentgen dermatitis, general pruritus of undetermined cause, and bromide intoxication which had been present for at least a month before the patient entered the hospital. The family history was normal. He had had as a young

man a mild tuberculous infection. Roentgen ray burns of the fingers developed a number of years ago. Coronary disease of the heart had been diagnosed three years previously, and tetanus one year previously.

For almost thirty days preceding entrance to hospital, the patient had been developing gradually a greater amount of psychomotor restlessness, impaired memory and judgment and increasing mental confusion which eventually attained the height of a marked delirium. Insomnia was striking.

In the examination we found a universal marked hyperesthesia. All deep reflexes were mildly increased, equal on the two sides. No pathologic toe signs were observed. Coordination was impaired. Some motor weakness was noted. Analyses showed urine usually normal, excepting a few hyaline casts at times. Mild lymphocytosis continued for some time, which might be attributed to the new skin lesions resulting from scratching by the patient.

The blood bromide registered in mgm. per 100 cc. at different times was as follows: November 30, 1936, 110; December 3, 90; December 6, 97; December 14, 50; December 23, 25; April 1, 1937, 25; May 26, 0.5.

The patient required close observation and treatment in the hospital with two nurses for thirty days and at home with one nurse for another month. The improvement was slow and gradual, resulting in eventual restoration.

A neurologic examination on July 23, 1937, revealed the patient in a fairly good state except mild insomnia. He died in January 1938, following an appendectomy, up to which time he had been free from brominism.

This case illustrates bromide intoxication with dermatitis, pruritus and attendant excoriation with striking delirium and insomnia. The treatment consisted of rest, elimination, warm medicated packs and sodium chloride.

Case 2. W., aged 70, a druggist, whose family and past history had no bearing on his present trouble. The patient entered St. Luke's Hospital on Dr. R. L. Sutton's, Jr., service with a complaint of itching and scaling of the skin. There was evidence of much scratching and pustular secondary infection. There was a history of his having applied every salve on his shelves. A diagnosis was made of exfoliative dermatitis probably due to contact with medicinal substances. No serious cardiovascular trouble was noted. Blood pressure registered 140/70. His urine contained a little sugar, bile and a few hyaline casts. Blood showed erythrocytes 3,580,000, lymphocytes 10,000, and blood sugar 83. The blood chemistry was normal except for 45 mgm. of bromide per 100 cc.

The neuropsychiatric consultation revealed fairly good motor functions with some generally increased deep reflexes. Pupils were a little irregular. He had bilateral cataracts. Mental observations revealed impaired memory, judgment and reasoning powers and a psychomotor restlessness. Sodium chloride was given freely, elimination improved and bland local skin treatment instituted. He left the hospital against medical advice after three weeks of treatment but with some improvement. He was seen three months later and was entirely free from dermatitis and pruritus.

This patient had a complicated toxic state much of which may be attributed to brominism. A comparatively small amount of the drug was required to produce intoxication on account of his age, physical condition and promiscuous self medication.

Case 3. McD., married woman, aged 35, had been taking prescriptions from several doctors and patent medicines known to contain bromides in considerable quantities "for her nerves" for a year or longer. She became gradually more and more impaired mentally with a loss of weight, disinterested expression, personal carelessness, impaired speech, annoying and stubborn conduct

and much psychomotor restlessness. Her past history had been essentially normal except for some "nervousness" and a couple of operations some years earlier.

The examination revealed a haggard looking woman appearing older than her years. Pupils were irregular and responses somewhat sluggish. The eyegrounds presented some passive stasis. All deep reflexes were slightly increased. Some tremor was present. Breath was foul and tongue coated. Blood pressure was 115/70. Bromides in blood serum were 275 mgm. per 100 cc. Other laboratory findings were normal. She had definite hallucinations and some negativism suggesting some possible schizoid state. It was necessary to place her in a sanitarium where she frequently was noisy both day and night, stubborn and obstinate, with occasional incontinence, and carelessness concerning her appearance and cleanliness. The skin was oily and sluggish. A papular eruption was present, more marked on the chest, with occasional pustules here and there. Severe pruritus had provoked her scratching.

The patient was put to rest, elimination improved, warm packs used and sodium chloride given. At the end of two months a sufficient improvement had taken place so that she could be discharged from the sanitarium, at which time weight had increased 18 pounds. Two years later she continued well with an occasional slight neurotic episode. Brominism with the accompanying impaired metabolism may be indicted as the etiology of the illness for which the patient sought treatment.

The three cases cited have been selected from a large group, most of them banal in type, to illustrate some outstanding features with combined central nervous system manifestations and skin lesions. All had gone unrecognized for much too long a time. Two patients belonged to professions having a considerable knowledge of the pharmacology of bromides. They presented much evidence of itching and self-inflicted scratch lesions. The pruritus was especially marked and annoying in the case of the doctor. All had used the drug for some time, the exact amount not determined but probably not unusually large. The toxic threshold was especially low for cases 1 and 2. For the former the blood bromide exceeded 110 mgm. per 100 cc. only once in the many tests made. In the second patient it probably never was in excess of 45 mgm.

Symptoms emanating from the central nervous system were definitely present in all three, but striking in that of the doctor and the third case. It was necessary to evaluate the cardiovascular condition and tolerance of drugs. The delirium and insomnia caused some concern for the prognosis and treatment of the physician.

SYMPTOMATOLOGY

In a general consideration of the symptomatology, we shall give only brief attention to diagnostic signs other than those referable to the central nervous system. Skin manifestations excepting for some mild physiologic disturbances are present in brominism in much less than half the cases. This is especially true for the milder intoxications. No one dermal sign will permit a positive diagnosis, even the banal bromine acne which is so well known. Perhaps it is confusing to note that pruritus of a severe type may be present. The textbooks pre-

scribe bromides for this syndrome, and when given judiciously they may be of much value.

In the gastro-intestinal system among the several manifestations may be cited especially a fetid breath, coated tongue, salivary troubles, a catarrhal condition of the entire tract and constipation. A slow pulse, bronchitis, impaired appetite and anemia may be present.

The central nervous system is where we find early and persistent evidence of excessive sedation. All degrees of reduced cerebral physiology may be noted, indicated in the various body functions. A mild impairment of memory, attention, reasoning capacity and somnolence may progress as the intoxication increases. Thus we may have a delirium with various degrees of pathologic activity, even an acute maniacal state or coma. Hallucinations of various types may be present. Fabrications and confabulations have been recorded. Occasionally the syndrome may resemble a Korsakoff's disease, paresis and even paranoid states. Incoordination and tremors appear only with the long continued use of the drug. All superficial and deep reflexes may be lessened possibly to the vanishing point. Essential, vital reflex functions are reduced. The pupils may be dilated and exhibit diminished reactions of all degrees.

PATHOLOGIC CONSIDERATIONS

In the recorded cases, previously existing diseases and concomitant conditions have been factors for the development of bromide intoxications. Thus cardiovascular disorders, nephritis and many other chronic diseases may cause the individual to be much more susceptible to several types of brominism. The many changes which might occur in the various organs, especially the cellular and nerve fiber degenerations with a replacement gliosis in the brain and spinal cord, can only be mentioned in a limited presentation. The morbid anatomy as illustrated in human fatal cases and animal experimentations will not permit of a positive differentiation of a bromide intoxication. Of course the history of the continued use of the various bromide compounds is of much value in suspecting brominism. Together with the symptoms, the examination of one or several of the body fluids is of great diagnostic importance. In bromide intoxications we always find excessive quantities of bromine in urine, saliva, gastric secretions and cerebrospinal fluids; yet the blood is the most practical element for the determinations. Here we must not forget that traces or a small amount of bromine is present physiologically which may have entered the body through several different foods and table salt. There are available now several reliable and practical quantitative tests. In human autopsied cases and animals where bromide experiments have been carried out, bromine may be detected in pathologic quantities in all the organs. Especially it is to be noted that large quantities always are to be found in the parenchymatous and interstitial cerebral tissues. Bromides have a particular affinity for the

central nervous system. Diethelm, Chatagnon, Barbour, Mason, Malamud, Welch and others furnish concise data relative to physiologic, anatomic and clinical pathologic matters.

Medical literature contains a great deal of material on the replacement of the chlorine halogen with that of the bromine. This substitution is a definitely established fact. Some authorities state that when the exchange reaches 25 per cent toxic manifestations may be suspected, and at 40 per cent there is danger of death. The normal range for sodium chloride in the blood is from 400 to 550 mgm. per 100 cc., being slightly higher for the blood plasma. While the chlorine ions are greater in quantity in the spinal fluid than in the blood, yet the replacement bromine ions may be less in the spinal fluid than in the blood. Bromide ratios vary for different nervous and mental diseases.

A review of the literature reveals a considerable variance in the figures for the toxic threshold for brominism, varying from 100 to 250 mgm. per 100 cc. in blood estimations. There are only a few cases reported where it falls under 100. The attention of the reader might be called to our severe cases 1 and 2 cited previously. The first had originally 110 but promptly dropped and stayed under 90. The second had a recorded amount of only 45 mgm. Individual susceptibility to brominism varies greatly. Chronic pathologic conditions may reduce the threshold considerably. Thus any possible knowledge of individual susceptibility might be of much value in the clinical use of bromide salts.

TREATMENT

A first consideration in the therapy for any type of brominism is to withdraw completely or reduce rapidly the bromide preparation that the patient might be taking. The question of using other sedatives for symptoms is a matter of judgment on the part of the attending physician. At any rate it can be said safely that close attention to prophylaxis may prevent many mild as well as severe bromide intoxications.

Rest in bed is frequently indicated. However, judicious exercises for the milder cases may be beneficial. The author noted in his earlier experience in an epileptic colony that patients doing a considerable amount of work, especially with outdoor physical exercise, tolerated bromide medication much better than others. Thus improved or better metabolism would prevent possible troublesome toxic manifestations. Fowler's solution may be of definite value in treating the milder chronic cases where bromide medication is desirable and it can be added to the various solutions.

Elimination of the bromine which can be carried out in several ways is important. Anything which increases tissue metabolism may promote the replacement of bromine with chlorine ions. Simple diuretics may be considered. However, they may be no better than large quantities of water. Laxatives whether saline or vegetable are indicated frequently. Hydrotherapy by long continued tub

baths or other means often proves exceedingly beneficial. Where there exists psychomotor restlessness and various grades of delirium, and when it may not be convenient or practical to use the tub, the hot packs are advantageous. These may appeal especially where aid for sleep is required. Frequently hydrotherapy in one form or another can totally replace drug sedation.

The use of sodium chloride in considerable quantities is universally recommended, and justly so when we consider the pathologic replacement of the chloride ion by the bromide. Several grams, about 10 to 15 daily, may be given by mouth to most patients. Occasionally it might be necessary to give saline solutions intravenously, subcutaneously or by enema. However, infrequently it may be expedient to proceed cautiously with sodium chloride therapy. This is especially true with the few patients who might have a too sudden replacement and excessive elimination of the bromides. It has been suggested that a tube be kept in the stomach for one or more days for frequent withdrawals of the gastric fluid which may aid a more rapid removal of the bromides from the system. This method too frequently is not practical on account of the mental condition of the patient. Gastric lavage several times a day also has been recommended, but this can remove too much free hydrochloric acid as well as bromides.

SUMMARY

1. While toxic manifestations of several types and degrees involving brain and skin have been recognized by physicians for many years, yet many cases of brominism, especially those having nervous or mental manifestations essentially, go unrecognized.

2. The bromides frequently may produce both cerebral and dermal pathologic exhibitions, yet more than half have the former alone.

3. The toxic threshold for the individual presents wide variations. A minimum figure of from 100 to 150 mgm. of bromine in the blood to produce toxic manifestations usually is given. Uncommonly less than 100 mgm. can produce definite symptoms, and in one of the writer's cases only 45 mgm. were required.

4. No one clinical sign will permit of a diagnosis. The entire syndrome should be considered, and especially is the amount of bromide found in the blood important.

5. A blood replacement with about 25 per cent reduction of chlorides and the substitution of bromides suggests a possible toxic state, and 40 per cent is a definite danger signal.

6. The treatment consists of withdrawing the bromides either totally or quite rapidly, rest, elimination by several means, the introduction into the body of goodly quantities of sodium chloride and hydrotherapy.

7. The prognosis for the bromide intoxication per se should be excellent. The patient with severe

brominism may anticipate an improvement within two or three weeks, and a restoration to follow about two to four months of treatment.

8. The bromides are eliminated slowly, and from two to six months may be required to remove all excess quantities from the body fluids and tissues.

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Appreciation is acknowledged to Dr. R. L. Sutton, Jr., for the use of two of his cases and for suggestions.

NODULES IN FEMALE BREAST REGION MAY BE SYMPTOMS OF DISEASE

Nodules under the skin in or near the female breast, as well as in the trunk and extremities, may be symptoms of a relapsing febrile disease, J. Samuel Binkley, M.D., New York, asserts in *The Journal of the American Medical Association* for July 8.

He reports a case of the disease in which the first nodules appeared in the fatty tissues of the breast. The condition, known as "relapsing nodular nonsuppurative panniculitis," in general is characterized by recurrent attacks of malaise and fever of varying degrees, associated with nodules (cystlike formations) under the skin in the trunk and extremities. The nodules may show various degrees of redness, mottled brawny pigmentation and tenderness. They do not tend to discharge pus and may undergo spontaneous regression often resulting in localized atrophy and depressions in the contour of the skin. Residual areas of thickening may adhere to the skin.

Dr. Binkley believes that "the case calls attention to the fact that localized panniculitis of the female breasts probably occurs separately and apart from the general condition. Preliminary studies of a group of patients seem to indicate that nonsuppurative panniculitis of the breasts may produce an inflammation with death of the fatty tissue that resembles that so often confused clinically with cancer."

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AUGUST, 1939

EDITORIALS

THE DOG DAYS

With a comparatively comfortable summer behind us, we may look with suspicion on the days to come, knowing from experience that no summer in this part of the world fails to bring periods of disastrous heat.

When the human body finds itself in an environment of excessive heat made worse by high humidity, the first signs of danger—headache, dizziness, cramps—may be overlooked. If recognized, the individual should promptly seek more favorable surroundings. If this be impossible and the body is no longer able to maintain its necessary loss of heat by the usual means of radiation, conduction and evaporation of sweat, the body temperature rises with accompanying increase in stupor leading to delirium and unconsciousness. In dealing with such a situation, promptness in securing relief is vital. A delay of an hour may prove fatal. The treatment consists in attempting to cool the surface of the body, placing ice around the body and wetting the surface of the body with cool water. Currents of air supplied by fans will hasten the evaporation of water and hasten the cooling. Saline hypodermoclysis is beneficial.

The use of table salt has become popular and factory workers and golfers alike eat tablets of sodium chloride to avoid the prostration that follows the loss of great quantities of this substance by profuse sweating. It is estimated that 20 grams a day may be lost under certain conditions.

Finally it is important to avoid overheating the body whenever possible by the use of frequent baths. This applies to the aged and those afflicted with hypertension particularly. As in so many other situations in medicine, prevention is most important.

GROUP HOSPITAL SERVICE

The third annual report of Group Hospital Service, Inc., St. Louis, covering its fiscal year ending April 30, 1939, was recently issued. The report contains a financial statement and audit and also in-

cludes sufficient data to show significant trends and experience and to evaluate procedures and policies.

At the close of April 1939, the end of the third year since the establishment of Group Hospital Service, there were 38,074 contracts in force covering 69,182 persons. More than fourteen hundred business and industrial firms were represented. The principal objective of the organization is to serve individuals and families in the middle and low income groups and the report shows that approximately 90 per cent of persons enrolled earn less than \$3,000 a year and approximately 60 per cent earn less than \$1,500 a year.

The audit showed admitted assets as \$198,326.79; actual and potential liabilities of \$91,199.80, and reserves and surplus as \$107,126.99. During the last fiscal year the Service paid \$293,879.34 to member hospitals for 64,326 hospital days. The average stay in the hospital was 9.08 days. Members paid the hospitals \$125,336.44 in addition to that paid by the Service.

Hospital service costs increased from 54.43 per cent of income to 62.74 per cent during the last year and administrative expense decreased from 25.26 per cent to 17.98 per cent. Hospital care required 62 per cent of the income during the last year; administration 11 per cent, interpretation 7 per cent and 20 per cent was placed in reserve.

Cities now having member hospitals and groups enrolled are St. Louis, St. Joseph, Hannibal, Marshall, Boonville, Jefferson City, St. Charles, Joplin, Carthage, Springfield, Ironton, Jackson and Cape Girardeau, and Granite City, East St. Louis, Belleville, Murphysboro, Carbondale and Cairo, Illinois. Kansas City, Missouri, and Alton, Illinois, have reciprocal plans. Macon and Maryville have member hospitals but no groups enrolled.

Preparations for serving the entire State of Missouri and Southern Illinois have been completed during the last year. Branch offices are maintained in Cape Girardeau, Joplin, Springfield, St. Joseph, Jefferson City and Hannibal. The state has been divided into six areas exclusive of Kansas City with the sections assigned to branch managers. After payment of all organizational, administrative, acquisition and hospital expenses, out-state operations showed a deficit of \$1,183.15. Nonrecurring expenses contributed largely to this deficit. The report recommends, however, that in the future any community desiring the service be required to defray organization expenses for at least six months, thus relieving the Service of a financial load and insuring community cooperation.

The report states: "Missouri is predominantly an agricultural state and the problem of serving farmers was an early one for us to face. Correct interpretive and enrollment procedure placed natural restrictions upon us in our effort to reach the suburban groups. First, it was necessary to establish contractual obligations with approved hospitals throughout the state. It is our practice not to enroll groups unless hospital facilities are available.

Recognizing the autonomy of local county medical societies, we insisted upon the specific approval and invitation to serve their respective counties."

In February 1938 discussion was begun with the Missouri Farm Bureau Federation in regard to coverage of farm groups. An educational campaign has been conducted through the official publication of the Farm Bureau and talks have been presented throughout the state. So far approximately a thousand farm families are enrolled through county farm bureaus.

The volume of work accomplished by the Service is evident by comparison of figures for the three years since its establishment. In April 1936 there were 639 contracts in force covering 639 persons; in April 1939 there were 38,074 contracts covering 69,182 persons. In 1937 there were 8,114 enrollments; in 1938 there were 11,940 enrollments which covered an additional 11,293 dependents; in 1939 there were 18,020 enrollments covering an additional 19,815 dependents.

A board of trustees composed of ten members together with five officers form the ruling body of the organization. Drs. Archer O'Reilly and Carl F. Vohs, St. Louis, are members of the board, and Dr. Major J. Seelig is vice president. Mr. Ray F. McCarthy is director. The office is located at 3607 Olive Street, St. Louis.

MEDICAL ETHICS AND THE LAW

Medical ethics may seem rather intangible at times. They are voluntarily agreed to in contrast to our statutes which are definite and carry penalties for their violation. Medical ethics are respected and upheld by the great majority of practitioners and the medical profession knows the importance of an ethical relationship with patient, colleague and community. It is gratifying that recently a Federal judge gave recognition to the importance of medical ethics as a protection to the public.

In John R. Brinkley's recent libel and damage suit against Dr. Morris Fishbein as editor of *Hygeia*, in which a verdict was returned in favor of Dr. Fishbein, Federal Judge R. J. McMillan emphasized the significance of medical ethics in his charge to the jury. The case involved the question of absolute privilege under the law of libel where the defense was truth and the protection of the public health.

The *Journal of the American Medical Association* published the proceedings of the trial, the last instalment appearing in the June 3 issue. The comment in the *Journal* and the portion of the judge's charge to the jury which dealt with medical ethics follow:

"Most significant is the charge of Judge R. J. McMillan to the jury which rendered the verdict in this case. The entire charge merits most careful consideration; indeed, some of the statements might well be read to the senior class of every medical college in this country. Particularly to be considered is that section of the charge dealing with medi-

cal ethics. Here the judge said, and it is repeated for emphasis:

In determining what is professional and not professional conduct of the physician, you may take into consideration the rules of ethics followed by the great majority of medical men and which are recognized generally in their profession. . . . The term as applied to the liberal professions, such as the practice of medicine or the practice of law, is generally understood to mean that course of conduct pursued by recognized moral practitioners either of medicine or law.

It doesn't necessarily follow that every slight deviation or change by a doctor or a lawyer from what the general body of the doctors or lawyers do would be unethical, but if his course of conduct was far beyond and contrary to the course of conduct which the other members of his profession followed, then you would say that he was unethical either in the practice of medicine or in the practice of law.

As the evidence here shows, it has practically always been considered unethical for physicians to advertise, that is to say, to advertise further than to call the attention of the public to the fact that they were there ready to practice, and by some character of card giving their location or address, or if they specialize in some particular kind of practice to so advise the public. Advertisements by which prizes are offered to secure patronage or by which claims are made of superior skill or ability are not ethical, and you may consider those matters in this case in passing on the question as to the truth or falsity of the charge. In other words, it is one of the component elements that go to make up the question as to whether this man would be classified as a quack or not. It is not entirely determinative, but it may be that it is entitled to consideration. Accordingly, in determining what is professional and unprofessional conduct by a physician you are entitled to take into consideration the rules of ethics followed by the great majority of the medical men and which are generally recognized in their profession. The conduct of the plaintiff Brinkley should not be measured against his own personal ideas with regard to what is proper. It should be measured against the ethics and approved conduct of physicians generally, and to such extent that his conduct as a physician varies from the rules of ethics recognized and observed generally he becomes subject to criticism, and criticism of his conduct is privileged unless unduly excessive and the terms of the criticism are unreasonable or unfair.

"Thus a Federal Court has recognized the significance of medical ethics for the protection of the public, and the jury after due consideration placed its approval on the right of the public to have the protection that medical ethics affords."

NEWS NOTES

Dr. Claude J. Hunt, Kansas City, was a guest of the Central Kansas Medical Society on June 8 and spoke on "Surgical Treatment of Benign and Malignant Lesions of the Stomach."

Drs. Ralph S. Casford and Clifford C. Wilson, Kansas City, were guests of the McPherson, Rice, Reno and Harvey county medical societies at McPherson, Kansas, on June 14. Dr. Casford spoke on "Coronary Heart Disease" and Dr. Wilson discussed "Anesthesia in Proctology."

Dr. Frank D. Dickson, Kansas City, was installed as president of the American Othopaedic Association on June 8 at the session in Buffalo, New York.

Dr. Evarts A. Graham, St. Louis, is serving as head of the teaching surgical unit of St. Bartholomew's Hospital, London, England, this summer. He will return to St. Louis about September 1. This is the first time an American surgeon has been asked to take this temporary position, British surgeons having filled it previously.

Dr. August A. Werner, St. Louis, was a guest of the Twin Lakes District (Iowa) Medical Society at Rockwell City, Iowa, on June 15 and spoke on "The Sex Hormones." On June 19 he addressed the Mahoning County (Ohio) Medical Society at Youngstown, Ohio, on "The Effect of the Ductless Glands on Growth and Development in Pre-Adult Life."

Dr. W. W. Graves, St. Louis, will receive the St. Louis Medical Society's Gold Medal and Certificate of Award this year, it has been announced.

The award will be made for his studies on inherited variations in relation to problems of human constitution. Recommendation for the award was made by the Council of the St. Louis Medical Society and the medical faculties of Washington and St. Louis universities. The award has been made on only two previous occasions. In 1927 Drs. Evarts A. Graham, Glover Copher and Warren H. Cole were corecipients, and in 1935 Dr. E. A. Doisy received the award.

The Refresher Courses in Obstetrics and Pediatrics, sponsored jointly by the State Board of Health and the Missouri State Medical Association, terminated on May 31. The State Board of Health has announced that no request was included in the annual budget submitted to the Children's Bureau to cover an educational program of this type for the coming year. Dr. O. F. Bradford, lecturer on pediatrics for the course, has entered private practice in Columbia and will restrict his work to pediatrics. Dr. Paul F. Fletcher, lecturer in obstetrics and gynecology for the course, has entered private practice in St. Louis, limiting his work to obstetrics and gynecology.

ORGANIZATION ACTIVITIES

PROPOSED CONSTITUTION

The following proposed Constitution was introduced at the 1939 Excelsior Springs Session of the Association.

ARTICLE I—NAME

The name and title of this organization shall be the Missouri State Medical Association, and by such name shall have the right to contract and be contracted with,

to plead and implead, to sue and be sued, and shall have the right to acquire, own, hold, mortgage and dispose of such real and personal property as shall be necessary for a proper maintenance and conduct of its affairs.

ARTICLE II—PURPOSES

The purposes of this Association shall be to bring into one compact organization the medical profession of the State of Missouri; to extend medical knowledge and advance medical science; to elevate the standards of medical education; to promote friendly intercourse among physicians; to safeguard the professional integrity of its members and to establish and maintain them in appropriate and equitable relationship with the public, with the government and with all agencies working in the field of health and welfare; and to enlighten and direct public opinion in regard to the problems of medicine and health for the best interest of the people of the state.

ARTICLE III

This Association shall have the right to enact By-Laws providing for the government, management and control of the Association.

ORGANIZED PAYMENTS FOR MEDICAL SERVICES

It would stretch the imagination of a social planner to devise any scheme for the organized payment for medical services that is not described in a recent publication of the Bureau of Medical Economics of the American Medical Association, "Organized Payments for Medical Services." Several hundred plans for medical care of the indigent involving governmental support and medical society management are explained. Social Security legislation has brought about changes in medical arrangements reaching into almost every locality in the United States and affecting health departments, medical societies and state and local governments. Types of plans proposed by the Farm Security Administration to provide medical services to Administration clients in 127 counties and covering 100,000 low income families are described. Medical societies have organized postpayment and prepayment plans of medical care offering a wide selection of types. Some provide for a cash indemnity to be paid to the insured with which he can purchase his own medical service and others provide medical service directly.

Industries, unions, fraternal organizations and all types of mutual societies provide medical benefits for their members by a variety of prepayment devices. Some 3,000,000 persons are covered by group hospitalization plans which show a wide variety of relations with state and county medical societies. Commercial insurance companies, all of which pay benefits in cash, are also entering this field on a large scale. It is estimated that approximately \$300,000,000 in cash is paid out annually by insurance companies to assist in paying medical bills.

The House of Delegates of the American Medical Association has endorsed cash indemnity prepayment plans, but has not sought to prohibit any of its component societies from cooperating with or

organizing other types of prepayment for medical service provided their character is not such as to render it impossible to give good medical service.

The number and variety of the plans for medical services—operating and proposed, postpayment and prepayment, service and cash, medical society and other organization sponsored—give proof of the efforts that are being made to supplement the private practice of medicine and indicate a desire to discover, by social experimentation, a solution of local medical problems.

The book is being studied by the Association's Committee on Medical Economics. Copies of the book may be obtained from the American Medical Association for 50 cents.

THE WAGNER HEALTH BILL AND SOME NEW DEVELOPMENTS

The following data on the Wagner Bill appears in the July 22 issue of the *Journal of the American Medical Association*:

Hearings on the Wagner Health Bill, S. 1620, before the subcommittee of the Senate Committee on Education and Labor, were concluded, as far as the present session of Congress is concerned, on July 13. Representatives of osteopathy who appeared before the committee carefully refrained from defining osteopathy or distinguishing it from the practice of medicine. They asked that the bill be amended to entitle a licensed osteopath to render service under the act within the limits of his license. If the bill should be so amended, they said, it would meet with their approval. In view of the impending adjournment of Congress, authorities agree that the bill cannot run the gauntlet of subcommittee and committee and be reported to the Senate before the next session of Congress.

Efforts have been made to accomplish some of the objectives of the Wagner Bill through amendments to another bill, H. R. 6635, which now has passed the House and Senate. One amendment proposes to authorize increased appropriations for the Children's Bureau to enable it to enlarge its services for maternal and child health services and for crippled children. Another amendment proposes to increase the appropriation authorized by the Social Security Act for the enlargement of the work of the Public Health Service. A third, proposed by Senator Wagner, was designed to authorize the Social Security Board to set up a federal, nationwide medical service for persons who are unemployed because of their own disabilities.

The Senate Committee on Finance, having under consideration H. R. 6635, reported favorably on the amendments proposing to authorize increased appropriations for the Children's Bureau and for the Public Health Service and these amendments were accepted by the Senate.

Senator Wagner's amendment proposing to authorize the Social Security Board to set up a federal nationwide medical service for the benefit of persons who may be unemployed because of their physical disabilities was not adopted by the Senate Committee on Finance or called up by Senator Wagner when the bill was being debated on the floor of the Senate. Senator Wagner proposed another amendment providing for the creation of an Advisory Council on Disability Insurance, which amendment was accepted by the Senate. The proposed council would be established by two independent Congressional committees, the Committee on Finance of the Senate and the Committee on Ways and Means of the House of Representatives, each "in cooperation with the

Social Security Board." The amendment does not limit the membership of the proposed council and the qualifications of its members are not defined. They are to be appointed, however, as representatives of employers, employees and the general public. Provision is not made for the representation of the medical profession on the proposed council. The Senate Committee on Finance and the Committee on Ways and Means of the House of Representatives are to be permitted to make appointments to the Advisory Council on Disability Insurance only "in cooperation with the Social Security Board," and all necessary technical assistance is to be furnished by that board.

Specifically, the proposed council is to study and to report on the establishment of disability benefits under the Social Security Act as amended, with particular reference to the relationship of disability insurance to other forms of social insurance, the scope and coverage of disability insurance, the qualifications necessary to entitle a person to the benefits of disability insurance, the coordination of disability insurance with relief and other programs for alleviating distress among the disabled, rehabilitation services and any other matters that the Social Security Board or the Senate Committee on Finance or the House of Representatives Committee on Ways and Means may deem relevant to the inquiry.

The bill to which these amendments were appended was passed by the Senate July 13. The House of Representatives refused to accept the Senate amendments and the bill was referred to a conference committee, which will endeavor to adjust the differences between the bill as passed by the House and the bill as passed by the Senate. The amendments discussed will come before this committee for adjustment, since they were not in the bill as it passed the House.

OBITUARY

DANIEL E. KAUFFMAN, M.D.

Dr. Daniel Kauffman, St. Louis, was born January 21, 1898, at Monroeville, Indiana, and died at St. Marys Hospital, June 16, 1938, after a brief illness. He leaves to mourn him a devoted wife, Berenice O'Brien Kauffman, three young sons, Daniel III, Jack and Chris, and a small daughter, Peggy.

Dr. Kauffman was the son of Dr. Daniel Kauffman, Senior, and Theresa Brady. The senior Dr. Kauffman was for many years a well loved practitioner in Monroeville and his father was a Methodist minister who lost his life while serving with the Union forces in the Civil war.

Dan received his preliminary education at Monroeville. He then went to Notre Dame University for his last two years of high school and first two years of premedical study, and after this to the University of Indiana to complete his premedical work. When our country entered the World War during his first year at Indiana, Dan passed up the SATC and immediately joined the 150th Field Artillery of the Rainbow division. This division was sworn into State Service April 12, 1917, just six days after war was declared and embarked for France on October 18, 1917, being one of the first divisions to arrive at the front. It engaged in five major battles and suffered heavy casualties, Dr. Kauffman receiving shrapnel wounds and being gassed. After the armistice was signed, Dr. Kauffman was sent to a medical school at Marseilles for six months.

Upon his return to this country he again entered Indiana University, completed his premedical studies and entered the medical school at St. Louis University where he was graduated with the class of 1924. While in school he externed at Deaconess Hospital for two

years. He served his internship at St. Anthony's Hospital. In 1925 he was married to Miss Berenice O'Brien of St. Louis and began practice in his home town of Monroeville, Indiana, where he soon built up a large practice.

In 1929, feeling that he had reached his limit of service in a small town he went to Europe where he studied under Dr. Schilling in Berlin for six months, and then began the practice of internal medicine in St. Louis. His interest in arthritis was so intense that in a short time he had built up a practice limited entirely to this condition. Although still a young man he had already developed a national reputation in this field, had published several papers and at the time of his death was engaged in writing a book on the subject. He was on the staff of St. Marys and Firmin Desloge hospitals and the faculty of St. Louis University Medical School. For some time he headed the department of internal medicine at St. Louis County Hospital.

In addition to membership in the city, state and national medical associations he was three days before his death, elected to membership in the Society for the Control of Rheumatism, being the eighth member of this organization.

Dan Kauffman had a wide variety of interests but was particularly interested in sports and in contract bridge. For several summers he was a pitcher in the Tri-State League and while in school pitched for several school and class teams. At one time he held the contract bridge championship of St. Louis. One of his unusual interests was cooking. He delighted in inviting friends to his home and preparing the dinner himself.

Dan was deeply religious. On several fishing trips when there was some doubt as to the possibility of attending church, he solved the problem by taking a clergyman with him on the trip. And when the time came that he knew he was going to die he asked for and received the last sacraments of his church.

To Mrs. Kauffman, the children, and other members of the family we extend deep sympathy in their bereavement. Personally, I realize that I have lost one of my dearest and truest friends, and true friends are rare, indeed.—J. M. B. in the *Weekly Bulletin of the St. Louis Medical Society*.

SAMUEL F. ABRAMS, M.D.

I am grateful for this opportunity of saying a few words in memory of my departed friend and benefactor, Dr. Samuel F. Abrams. Almost a year has passed since his departure from among us and time has served as an excellent opiate to ease the pangs of the immediate pain and grief and has left only a dull incurable chronic ache among those that were close and dear to him. His absence leaves a definite space in our ranks and yet those that were close to him—his family, his associates, and his numerous devoted and grateful patients—will everlastingly worship at the shrine of his memory.

The true record of a man's career is, in a way, a mirror for it gives back only that which he himself has put into it. Samuel Abrams was only 46 years old when he departed and yet within that short time was crowded a life full of hard work and feverish activity as if he were aware that he had no time to waste. Born in St. Louis, his career was chosen in his early childhood. He went through public school, graduated from the Washington University School of Medicine and received his training at Barnes and Maternity hospitals. When the World War broke out he volunteered in the army and when the war was finished he began his unselfish service to humanity.

He was particularly adapted to the stress and strain incidental to a career like his own because he was endowed with a rugged, powerful physique and a surpris-

ing energy that knew no bounds. Day in and day out for many a year we have seen him come and go at the Jewish Hospital where he did most of his work, always eager to help, always ready to serve although many times weary. In my association with him in his last few years, frequently when the terrific pangs of pain which he sometimes experienced would have overcome a much less courageous individual, he would grin, grit his teeth, and continue to work.

Many men have thought him unhampered by a soft side to his nature, and yet I have seen him come home after a very hard day's work, when the lines of his face were set and his expression was grim, and when his three little children would gather around him his face would take on an expression of extreme tenderness and understanding.

His medical work was to him first and above all. The welfare of his patients was sacred to him and frequently when we would discuss a serious procedure to be done that would involve a certain risk to the life of the patient, he would look at me and say: "Would you do this procedure to your sister or your mother or your wife?" That philosophy governed his entire relationship with his patients and for that reason not only did he administer to their ills but he frequently had close control over the intimate relationship of families.

Speaking at his interment Dr. Sale said: "In his daily walk he strode with head erect but he did not strut. He had opinions of his own but he was not oracular. He was glad to give of what he knew but he was ever ready to take. He was glad to teach and he was eager to learn. He was not easy to know for he did not hold friendship cheaply, but he did not keep himself aloof or shun his fellows." This characterizes the man much better than hours of description of his many deeds and accomplishments.

Dr. Abrams departed from among us at the prime of his life and we who were close to him would rather feel not that he had left us before his work was finished, but merely that he temporarily put his burden down by the side of the road, sat down to rest and fell asleep.—L. F. in the *Weekly Bulletin of the St. Louis Medical Society*.

JOHN ROBERTS CAULK, M.D.

John Roberts Caulk, St. Louis, our genial, lovable and much beloved colleague, passed away October 13, 1938. He was born on the eastern shore of Maryland, October 30, 1881, and attended successively several Maryland schools and in 1906 he received his medical degree from Johns Hopkins University. He served as assistant physician in the Union Protestant Infirmary at Baltimore and later became the first resident in urology at Johns Hopkins Hospital. He went to St. Louis in 1910 to make his home and his rapid success and national fame started almost immediately. Shortly after his arrival in St. Louis he was appointed instructor of genito-urinary surgery at Washington University Medical School and rose rapidly to the chair of professor of clinical genito-urinary surgery which he held until his death. To enumerate his original contributions to urology, or his writings, or to identify the scientific societies that claimed him as a member would for want of time and space defeat my humble attempt to eulogize this wonderful surgeon and associate, but I will ask your indulgence while I call attention to some few of his contributions to urology that must go down in the history of urology as outstanding achievements.

He devised a kidney position and incisions for simplifying kidney surgery and was the first surgeon to perform a two-stage operation for large stones in a severely infected kidney. He also was the first to propose kidney drainage in cases of ureteral ligation. Dr. Caulk was the first physician to describe the megalom-

ureter and to suggest an operation for its relief. He was the first to propose that bulgare bacilli be introduced into the bladder to dissolve phosphatic stones and alkaline deposits. He devised the cautery punch operation for removing prostatic obstruction through the urethra. He originated the method of anesthetizing the bladder neck by infiltration and made important observations on the nature of prostatic growths, presenting definite evidence that most of them are the result of chronic inflammation rather than tumor. This last named achievement started the urologic surgeons to recognize the possibility of prostatic resection in any type of prostatic enlargement as eventually displacing surgical removal of the prostate in these old debilitated individuals.

It would take hours to elaborate on his urological achievements and to give an intimate picture of this wonderful diagnostic and surgical genius but I am sure everyone is more or less familiar with this national figure so we will turn to his personal side.

Public recognition came early but it affected neither his personal balance nor the intensity of his professional pursuits. Dr. Caulk was possessed of a most charming personality and an air of refinement lent a delightful atmosphere to his presence. He was most entertaining and was blessed with a keen sense of wit and humor though he could be serious minded, especially when a medical or surgical problem was under discussion. He was a dynamic individual and was embodied with unusual energy for work. He was a great fellow to work at full speed and play in the same manner. Dr. Caulk was courteous and congenial at all times and all his colleagues, especially those fortunate enough to have been closely associated would sing his praises for his pleasant attitude at all times. He was most enthusiastic about his work and was constantly searching for new problems to solve. He was fortunate in having a multiplicity of qualifications for work and play which permitted him to do both without the sacrifice of either. His two chief hobbies were horseback riding and sailing. In the summer he loved the latter better than anything else and practically lived on his sailboat. In the spring and fall horseback riding was his most pleasant diversion. In the winter his books and extensive contributions to medical journals occupied his time at night and the day found him laboring with unusual skill and enthusiasm on various urologic problems.

The acid test of a man's character comes through adversity even more than success. For more than a year he was suffering from a malady that was uncontrollable. During most of this time he was in full possession of his mental faculties but his fortitude and courage remained on top. I visited him at regular intervals and though he was losing ground rapidly and suffering intensely his genial smiling manner was always present. It was a crushing blow to all of his acquaintances and friends to see the light of day gradually flicker out of this wonderful mind that had done so much towards relief of suffering humanity. As he crossed the great divide I could not help from thinking that his personality will long be remembered by those fortunate enough to know him and that his silent influence and constructive teachings will be an incentive long after his personality has been forgotten.—J. H. S. in the *Weekly Bulletin of the St. Louis Medical Society*.

ROBERT D. ALEXANDER, M.D.

Dr. Robert DuBose Alexander, St. Louis, was born in Delhi, Louisiana, in 1877. As with most Southerners born during the so-called reconstruction period, his inheritance consisted mainly of the traditions of Southern gentlemen. These traditions he treasured and exemplified throughout his life.

Never of robust physique, he exhibited in early life a love of art and nature which few of us are capable of experiencing. His literary education was completed at Centenary College in 1899, and his medical education at Washington University in 1905. After serving an internship at the City Hospital in St. Louis, he associated himself with the Missouri Pacific Hospital where he remained until 1927, resigning in that year with the title of surgeon in charge.

While at the old hospital on California Avenue, he spent much leisure time and personal effort in beautifying the grounds. So often was he found in the gardens that an employee once took the superintendent to task for making the doctor do the work of a common laborer. Because of his retiring nature he was perhaps too isolated during these early years.

The World War convinced him of the necessity for all unmarried men to enter the services of this country and in spite of personal disinclination, he volunteered for duty in the Medical Corps.

Army life had its compensations for Dr. Alexander. He rose rapidly from First Lieutenant to Lieutenant Colonel. The beauties of France more than counterbalanced the ugliness of war and he left the service with a broader and friendlier outlook than most men gain from military experience.

When he returned to St. Louis he devoted a part of his time to the private practice of surgery with especial attention to proctology. Excellent training for this branch was received from Dr. W. H. Stauffer with whom he was associated for a time.

In 1921 he became associated with St. Louis University. Advancing through successive steps, he reached the rank of assistant professor of surgery. He was chief of the clinic on rectal diseases at Desloge Hospital and an active member of the staff of St. Mary's Hospital.

His devotion to his patients was phenomenal even in a profession noted for this characteristic. Nurses and sisters were accustomed to night hospital visits impartially distributed between rich and poor.

His life was undoubtedly shortened by his untiring efforts on behalf of those entrusted to his care.—W. P. E. in the *Weekly Bulletin of the St. Louis Medical Society*.

BOOKS FOR LEISURE MOMENTS

ON THE CHOICE OF FOODSTUFFS

The average American is diet conscious. It does not follow that he is diet intelligent. Physicians must bring that about. There is a great furor about diet. Individuals recall some favorite eating practice of a relative long since dead and adopt that custom to their own living. They listen to the rapt description of an ill-starred menu advocated by friend or stranger and make that diet their own. They tune in their radios and find new reasons for consuming useless foodstuffs. They are besieged with printed material advocating one or another system of eating. Perhaps the most bizarre examples of these unhealthy dietary trends are to be found in reducing diets. It has been well said that the more unhealthy the diet the more zealously fat women will gobble it up.

The general public possesses a regrettable lack of sound information on the function of food and the methods whereby food may best be made to serve the human economy. E. W. H. Cruickshank, Regius Professor of Physiology at the University of Aberdeen, has made available in book form a series of public lectures he delivered under the John Farquhar Thomson bequest, "Food and Physical Fitness." This volume of 144 pages is published by William Wood and Company of Baltimore.

Professor Cruickshank's entire approach to the problem is eminently sound, couched in terms understood by the layman and calculated to offset the subversive effects of propaganda. It offers a convenient method for the physician to review rapidly the subject of nutrition. For the patient it offers a compendium of solidly based knowledge study of which will result in an improvement in health at the same time that it conserves that portion of the budget devoted to the provision of food-stuffs.

B. Y. G.

JEFFERSON, ROOSEVELT AND US

Inventive genius has produced a radical alteration in man's manner of living. It has led to increasing specialization of labor. It has resulted in greater interdependence of man upon fellow man. At the same time inventive genius has produced a stream of machines which occupy man's leisure. Flesh and blood are the same but outlook, point of view and motivation are different. Man has become more concerned with himself, less concerned with the fabric that binds all men together. He has lost that interest in the mechanics of government which led to the foundation of the American Democracy.

This indifference toward government has forced upon government the necessity to provide where improvisation fails to provide. The lackadaisical citizen accepts and perpetuates those apostles who do well by him. He has no urge to reason or to discriminate between those governmental activities which will be enduringly beneficial to him and those which are entirely transcendental. Beguiled by a great voice, intrigued by those agencies which fill his leisure, he gives no thought to the morrow. Or if he gives thought it is only to methods whereby he may provide for himself.

Mr. Frank Gannett, powerful newspaper publisher, has become concerned over the paternalism of government. He professes to find in it the destruction of those institutions which have made America great. To thwart this impending attrition he has formed an organization whose avowed purpose is to restore America to that state of rugged individualism which characterized it before the growth of governmental monopoly.

Samuel B. Pettengill, a former Congressman, has written, "Jefferson, The Forgotten Man," (America's Future, Inc., 205 East 42nd St., New York) under the aegis of Mr. Gannett. His book may be meaningful to the upper 0.1 per cent of the population whose combined income equals the combined income of the 42 per cent of the population at the other end of the economic scale. He expresses qualms in behalf of rich and poor. He is depressed lest additional tax levies actually leave the recipient of a quarter million dollar estate owing monies to the government. We are fearful that the man who does the voting may derive some vicarious satisfaction from such a consummation. But we are doubtful that this satisfaction would lead him to favor those candidates and measures which would prevent such a calamity to persons inheriting wealth.

Here it seems to us lies the weakness of Mr. Pettengill's somewhat wordy treatise. He skips nimbly from Jefferson, Washington and Franklin to Roosevelt and Hoover, to the dictator ridden countries, to the unhealthy city of Washington where crime is a leading occupation. He advocates a return to Jeffersonian Democracy but he does not offer a practicable method. He fails to reconcile his belief with the technological improvements of the last few decades and the increasing complexity of government. Indeed, his book makes it seem just as complicated and impossible as it must be.

We are entirely sympathetic with Mr. Gannett's and Mr. Pettengill's purposes. But it seems to us that they must find a method of impressing the "forgotten man" with the necessity of altering the present trend. To do

this they must evolve sociologic concepts in keeping with economic and scientific and mechanical progress. It is manifestly unfair to compare the era of the founding fathers when the family was an independent, integrated, self-sufficient unit with 1939 when the average one of us is but a pawn in the complexity of modern society.

B. Y. G.

THE PATIENT'S VERY OWN BOOK

Cecilia L. Schulz is a nurse. Before that she was a private secretary. Before that she was a close observer. Before that she acquired a delightful sense of humor. She brings all these qualities and all this training and all these experiences into a whimsical little volume. It is directed to the only group of citizens hitherto left without directions as to how or why or when to do something, be something or win something. With this volume the field of self-cultivation seems to have been exhausted. But before this account reaches the printer a new author will probably spring out of the blue to tell us how to do, be or win something that we never even thought existed. Nurse Schulz has gathered a multitude of details that will ease the burden of being a patient.

Her book is peculiarly appropriate for the doctor's plugging. In fact, every time he is called to see a patient he may safely recommend it. Especially if his patients are inclined to doubt his advice or quarrel with his remedies. (We doubt that any of our doctors have patients who belong to this category.) However, if you should have a patient who follows instructions indifferently, tell him to get a copy of "How to Enjoy Ill Health" (Whittlesey House, New York). You will be surprised what a whale of a difference it will make in him. He will look upon you with adoration and gain strength from your mere presence. There is nothing to prevent you from insisting that it was the medicine.

In eight chapters Nurse Schulz runs the gamut. She starts by inviting the patient to enjoy illness. She advises merrily on the best approach to illness, what, when and how to be sick and enjoy it. For she insists that illness must be enjoyed. For good measure she tells the patient how to treat his nurse, whether she be of the pure registered variety, the simple practical soul or the home makeshift. She expresses a strong preference for the first of these, a predilection more easily understood by recalling the R. N. which she flaunts.

And then, in a glorious spell of rampant blatancy she goes on to prove that doctors are really nice fellows. She even thinks that underneath their indifferent austerity they are human beings. She thinks well of their effort to ease the burden of sickness by inaugurating the plan known as Group Hospitalization. She even insists that patients will prove their wisdom if they will join up before they let a bug bite them or the appendix get out of kilter.

The line drawings of Chichi Lasley enliven the sprightly style of this secretary-nurse-humorist. Anyway you look at it the doctor cannot lose if he recommends this book to his patients and their friends. It will do them all good.

B. Y. G.

CARBONIFEROUS MEANDERINGS

The wonder of it is that man has been able to reconstruct so much of the past through the study of the earth's crust. Also, he has been able to allocate each of some twenty layers to its proper place in history. In short he has reconstructed a panorama of over a billion and a half years. Compared to the seven or eight thousand years of written history this accomplishment deserves high rank among the intellectual accomplishments of the expanding brain of the animal species.

Percy E. Raymond, Professor of Paleontology at Har-

vard University, offers a bird's-eye view of the existence of animal forms in "Prehistoric History" (Harvard University Press, Cambridge). The protozoa are the only form of life which has survived throughout this long period. Man's existence is insignificant in comparison to theirs. But the expanding brain case which characterizes the evolution of species has enabled him to accumulate the record. Education, the author assumes is the cause of that expanding brain.

Professor Raymond postulates the beginning of life in the chemical juxtapositions consequent upon the cooling of the earth. Changing climatic conditions associated with glacial activity and with the ebb and flow of large bodies of water resulted in modifications of the earth's animate life. That the process was a slow one may be judged from the fact that it took ten million years for the horse to lose its fourth toe.

One of the curious facts revealed by the record is that the proverbial antipathy between cat and dog is man made. Both have a common ancestry. But in the search for the affections of their human masters jealousy has developed between them.

The author is not unduly optimistic over the course of man's future existence. He writes, "man is a part of nature, physically governed by forces as yet only partially within his control . . . man is an animal and a badly assembled one . . . man will, like the dinosaurs, follow a royal road to destruction . . . at present he appears to be heading toward another dark period like that of the Middle Ages. . . ." B. Y. G.

TRENDS IN POPULATION

Until very recently the declining birth rate in this and other countries has given pause to the gentlemen who like to think that the world cannot go on unless the population becomes increasingly greater. On the other hand there are those who prophesy dire consequences because of the increasing concentration of older persons in the general population. And in the middle, untroubled by the consequences of a shifting concentration of the population are average men. It will be gratifying to them to know that Dr. Raymond Pearl, head of the Department of Biology in the School of Hygiene and Public Health of the Johns Hopkins University, is equally unconcerned.

The reason for this eminent authority's indifference lies in the fact that since the beginning of time those persons who were sure that their particular plan would improve the whole world have never been able to convince the mass of the people (who must execute the scheme) of its desirability. He writes engagingly of the whole problem in "The Natural History of Population" (Oxford Press, New York).

Much of the volume is given over to a critical consideration of the contraceptive practices of some 31,000 women living in the eastern part of the United States. Fewer than half of this group engaged in the practice. There is a distinct correlation between the economic level at which the woman lives and the frequency of contraceptive effort, it being the custom of only a fourth of the very poor as opposed to three fourths of the well-to-do. Strangely enough three times as many women practicing contraception resort to abortion as do those not practicing it. The author offers no interpretation of this inconsistency: Whether it means that the method is not satisfactory or is carelessly executed.

Pearl writes that the striking fact about the human being is not his fertility but his sterility. Approximately a fifth of the married couples in this country are childless. Only one of each 254 exposures results in pregnancy and if the results are recalculated on the basis of the so-called fertile period, only one of each fifty-five exposures so results. The author agrees with the earlier calculations of Dublin and Lotka that each married

American woman must bear 3.15 children to maintain a stationary level of population.

There is no essential difference between the innate fertility of American women belonging to different economic and social levels. But a multitude of factors have entered into the declining birth rate. Pearl is not convinced that any calamity will follow upon the failure of the so-called upper class to produce their quota of children, nor that the world will suffer from the production of children by parents, poor both intellectually and economically.

His last chapter is of particular interest. He discusses, among other things, the reason that the world population which increased slowly to 445 million persons in the half million years preceding 1630 jumped suddenly to over two trillion in the next three hundred years. He estimates the ultimate population at a little over two trillion, six hundred million. He leaves unanswered the question as to whether the population density of fifty-one persons per square mile at that time will be so great as to bring about a rapid decline in the population. But that problem will not be yours or mine or his.

Wars are brought on, Pearl writes, by the disparity existing between population densities and will never solve anything. Nine nations having 23 per cent of the world's population live on only 14 per cent of its total land area. Yet they control 66 per cent of all the land in the world and in greater or lesser degree the political life of 57 per cent of all human beings. Under such circumstances emotions are bound to be stirred, and it is not difficult to lead the citizens of a nation, which fancies itself oppressed, to do something about it.

B. Y. G.

RESEARCH OFFERS HOPE FOR REDUCTION OF DEATHS FROM GAS GANGRENE

Although gas gangrene is relatively rare in peace time, says *The Journal of the American Medical Association* for July 15 in an editorial, the death rate is still appallingly high. Much encouragement for its control is found in recent research.

The mortality rate from gas gangrene in civil life has been estimated by W. M. Millar, M.D., at 49.7 per cent from a study of 607 cases occurring in civil life from shortly before the beginning of the present century to 1930. The death rate from the same infection of the American Expeditionary Forces in France was 48.52 per cent.

Reviewing the research in control of the infection, *The Journal* says, "The question of what wounds to treat by the method of débridement (removal of all foreign matter and cutting away all injured tissues surrounding the wound) and the administration of antisera must be left to the experience and the judgment of the surgeon. The use of sera both as prophylactic and as curative treatment, while still in the experimental state, is definitely indicated.

"Judgment as to the efficacies both of sulfanilamide and of x-ray treatment must be suspended until further experience," the editorial concludes, pointing out that J. F. Kelly, M.D., and his co-workers are enthusiastic over results from the latter and are inclined to regard x-ray treatment in gas gangrene as a specific, stating that, if it is employed during the first twenty-four hours, recovery will occur in all cases.

ROLE OF NERVES IN MUSCULAR DISEASE

The muscular diseases, myotonia (muscular tenseness) and myasthenia (muscular weakness), are due to abnormal transmission of the nerve impulse factor in muscle movement. A. M. Harvey, M.D., London, England, states in *The Journal of the American Medical Association* for April 22.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.
Perry County Medical Society, December 15, 1938.
Camden County Medical Society, December 23, 1938.
Ste. Genevieve County Medical Society, December 23, 1938.
Dent County Medical Society, January 25, 1939.
Stoddard County Medical Society, January 30, 1939.
Howard County Medical Society, February 15, 1939.
Macon County Medical Society, February 22, 1939.
Johnson County Medical Society, February 25, 1939.
Morgan County Medical Society, March 21, 1939.
Webster County Medical Society, March 28, 1939.
Holt County Medical Society, March 31, 1939.
Bates County Medical Society, April 1, 1939.
Lincoln County Medical Society, April 5, 1939.
Miller County Medical Society, April 5, 1939.
Moniteau County Medical Society, April 5, 1939.
Barry County Medical Society, April 6, 1939.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR
Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society met at the Colonial Tavern, Cape Girardeau, June 12, with the president, Dr. J. H. Cochran, Cape Girardeau, presiding. A dinner preceded the meeting.

Members and guests present were Drs. Warren R. Rainey and Charles W. Duden, St. Louis; L. J. May, C. D. Nobles, P. M. Nation, D. L. Pang, A. F. Barnett and Berry V. Rife, Anna, Illinois; A. M. Estes, Jackson; W. L. Digges, New Madrid; Edward Crites, Sedgewickville; J. H. Cochran, A. M. Murphy, W. F. Oehler, M. H. Shelby, P. B. Nussbaum, O. L. Seabaugh, H. V. Ashley, G. J. Tygett, D. H. Hope, Frank W. Hall and C. A. W. Zimmermann, Cape Girardeau.

The secretary called attention to communications from United States Senator Robert R. Reynolds de-

scribing his efforts in opposing illegal and excessive immigration and requesting a contribution to help pay his expenses in his effort. The Society voted to contribute \$10.

Dr. Charles W. Duden, St. Louis, discussed "Irritable Colon," and illustrated his talk with films.

Dr. Warren R. Rainey, St. Louis, spoke on "The Early Diagnosis of Anorectal Diseases."

A round table discussion of the subjects was immensely profitable and enjoyable.

C. A. W. ZIMMERMANN, M.D., Secretary.

Six County Medical Society

The Six County Medical Society met at the Marshall Hotel, Sikeston, June 15, for a dinner meeting.

Members and guests present were Drs. G. V. Stryker and C. Malone Stroud, St. Louis; H. A. Dunaway, H. M. Kendig, A. A. Mayfield, T. C. McClure and M. G. Anderson, Sikeston; U. P. Haw, Benton; J. P. Brandon and W. J. Hux, Essex; W. A. Belsey, Campbell; J. Lee Harwell and J. Lester Harwell, Poplar Bluff; W. R. Limbaugh, Hayti; P. J. Aquino and J. B. Luten, Caruthersville, and G. A. Sample, Chaffee.

Dr. G. V. Stryker, St. Louis, spoke on "Common Skin Diseases."

Dr. C. Malone Stroud, St. Louis, talked on "Hay Fever."

L. E. COOPER, M.D., Secretary.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the St. Francois County Courthouse, Farmington, on June 30 at 7:30 p. m., with Dr. E. E. Higdon, Fredericktown, presiding.

Dr. E. Lee Dorsett, St. Louis, gave an excellent presentation with motion pictures on "Anesthetics in Obstetrics and Internal Podalic Version."

Dr. H. H. Cline was voted a member.

Dr. W. E. Aubuchon, Leadwood, was voted an honor member.

Dr. E. Lee Dorsett, St. Louis, was asked to discuss group medical plans in operation in St. Louis and stated that all were working poorly with the exception of Group Hospital Service which is working satisfactorily for the hospital and the doctor. Farm group hospital care was also discussed.

Dr. H. M. Roebber, Bonne Terre, stated that in the future the newspaper in Bonne Terre would submit material of a medical nature to him before it was published.

A letter from the Physician Committee for Free Enterprise and Medicine was read and the secretary was instructed to write the American Medical Association concerning the organization.

The application for junior membership of Dr. Ralph Kuhlman was referred to the council.

G. T. GRAVES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

16th Annual Meeting, Joplin

President, Mrs. Paul F. Cole, Springfield.

President-Elect, Mrs. Stanley P. Howard, Jefferson City.

The sympathy of all Auxiliary women is extended to Mrs. W. L. Wysong, Liberty, on the recent death of her

husband. Mrs. Wysong is a former state corresponding secretary.

Mrs. J. J. Gaines, Excelsior Springs, is recovering from an operation.

The Clay County Auxiliary and the Clay County Medical Society were entertained by an old fashioned country dinner at the Odd Fellows Home, Liberty. The Auxiliary elected the following officers: President, Mrs. John F. Grace, Excelsior Springs; first vice president, Mrs. N. R. Schuhmacher, Liberty; second vice president, Mrs. Y. D. Craven, Excelsior Springs; secretary-treasurer, Mrs. Aleen Weary, Excelsior Springs.

New officers of the St. Louis Auxiliary were installed on June 13 at the St. Louis Medical Society Building. Mrs. Horace Johnson, the retiring president, seated the new officers. Mrs. William R. Nye, the new president, entertained the past presidents at the Saum Hotel at a luncheon on June 14. Mrs. Martin J. Glaser is the president-elect.

BOOK REVIEWS

ENGLISH, GERMAN, FRENCH, ITALIAN, SPANISH MEDICAL VOCABULARY AND PHRASES. By Joseph S. F. Marie. Foreword by Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., Honorary Professor of Broncho-Esophagology and Consultant in Broncho-Esophagologic Research, Temple University, School of Medicine, Philadelphia. Philadelphia: P. Blakiston's Son & Co., Inc. 1939. Price \$3.00.

This is a compendium which will prove useful in translating from the English to the German, French, Italian or Spanish. As Chevalier Jackson writes in a foreword, this volume serves as a handy key to the stored medical knowledge of five languages.

B. Y. G.

SURGICAL TREATMENT OF HAND AND FOREARM INFECTIONS. By A. C. J. Brickel, A.B., M.D., Departments of Anatomy and Surgery, Western Reserve University. With 166 text illustrations and thirty-five plates including ten in color. St. Louis: The C. V. Mosby Company. 1939. Price \$7.50.

This book is outstanding in its clarity of presentation of subject matter, a quality which is possessed by few books on this subject. Undoubtedly much time had been expended in obtaining the facts upon which the subject matter is based. The author expresses himself in simple terms and in logical order leaving little to the reader's imagination. The thesis of this book is expressed in the succinct statement at the very end: "There is no such thing as a trivial cut or infection in the hand."

Approximately the first third of the book is taken up with the anatomy of the hand. The anatomical plates are outstanding in faultless accuracy. While dealing with the anatomy of the hand the author stresses concurrently those locations that are most apt to harbor infection.

The rest of the text deals with the infection of the hand and the forearm, the routes by which they may spread and the treatment of each condition as it arises. He analyzes the development of infections and presents outlines at the end of each important topic. Case histories follow each type of hand infection.

Due credit is given to the pioneer work of the late Dr. Kanavel and the author expresses deepest regret for the lack of his constructive criticism and approval.

I. A. W.

PERSONAL AND COMMUNITY HEALTH. By C. E. Turner, A.M., Sc.D., Dr.P.H., Professor of Biology and Public Health in the Massachusetts Institute of Technology; etc. Fifth edition. St. Louis: The C. V. Mosby Co. 1939.

In 650 pages the Professor of Biology and Public Health, in the Massachusetts Institute of Technology, presents an immense amount of carefully chosen data on personal and community health. Designed primarily for college students the volume will prove eminently useful to the physician who seeks the fundamentals in these important fields.

B. Y. G.

THE VAGINAL DIAPHRAGM. Its Fitting and Use in Contraceptive Technique. By Le Mon Clark, M.S., M.D., Chicago, Ill. Author of "Sex Education" and "Emotional Adjustment in Marriage." Illustrated. St. Louis: The C. V. Mosby Company. 1939. Price \$2.00.

Dr. Clark has written this monograph in the same practical style which he has used in his frequent contributions to *The Journal of Contraception*. This little book is neither a discussion of the mortality of contraception nor an explanation of other methods, but it is what the author claims it to be, a guide to the use of the vaginal diaphragm for contraceptive purposes. The doctor who wishes to learn more of the actual fitting of the diaphragm and its proper placing, as well as the advantages or possible errors of the technic, will find most of his questions answered by the text and the excellent illustrations of this book.

Especially helpful are the diagrams which show the variations of the anatomy and of the planes of the vagina with their relation to the fitting of the diaphragm. The author may confuse the reader slightly with repetition and with insistence on rather minor controversial details but the illustrations clarify the major points and make the book an excellent manual on the use of the vaginal diaphragm for contraception.

E. S. L.

MEDICAL STATE BOARD EXAMINATIONS. Topical Summaries and Answers. By Harold Rypins, A.B., M.D., F.A.C.P., Secretary, New York State Board of Medical Examiners; Member, National Board of Medical Examiners, Commission on Graduate Medical Education, Advisory Board for Medical Specialties, Advisory Council on Medical Education; Assistant Professor of Medicine, Albany Medical College; Former President, Federation of State Boards of Medical Examiners of the United States; Former Instructor in Medicine, University of Minnesota. Fourth edition. Philadelphia: J. P. Lippincott Company. 1939. Price \$4.50.

As secretary of the New York State Board of Medical Examiners and a member of the National Board of Medical Examiners, Dr. Rypins has had a broad and unique experience with candidates for admission to the practice of medicine. Based on that background of experience he has written a volume which gives the medical student a sense of direction as to the points and subjects on which the attention should be concentrated in order to insure success with his examination.

This fourth edition has been revised and brought up to date but follows the same concise style of other editions. It concentrates on material generally agreed by examiners to be essential for the candidate. Technical procedures are omitted, the author stating that such procedures cannot be taught in books and ability to employ them properly should be assumed in the modern graduate. Nine major medical subjects are reviewed and typical selection questions follow each section. The book is a successful attempt to give the graduate a review of material and explain the attitude of the examining board.

S. S. B.

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LATE ADVANCES IN DISEASES OF THE PANCREAS

WARREN H. COLE, M.D.

CHICAGO, ILLINOIS

The important diseases of the pancreas may be divided into five groups; namely, hypoglycemia, carcinoma of the pancreas, pancreatic cyst, acute pancreatitis and pancreaticohepatic disease. Fewer recent contributions have been made regarding diagnosis and treatment of pancreatic cyst than of any of the others. Since a great many of the principles involved in the physiology of the pancreas and the symptoms produced by pathologic disturbances are exemplified so well in acute pancreatitis, this lesion should perhaps be considered first. It is well known that induration of the pancreas, as encountered at operation in patients with biliary disease, may have distinct significance but it is true nevertheless that we have surprisingly little pathologic confirmation of the presence of chronic pancreatitis in patients with biliary disease. Occasionally diffuse scarring of the pancreas is encountered at autopsy. Most of these patients have no symptoms; others have symptoms and belong to the group classified as pancreaticohepatic disease.

ACUTE PANCREATITIS

In nearly all diseases the pathogenesis and etiology are important factors in determining the type of therapy. Unfortunately, there is considerable disagreement as to the pathogenesis of acute pancreatitis. As long ago as 1856 Claude Bernard showed that injection of bile with sweet oil in the pancreatic duct would produce acute pancreatitis. Opie¹ contributed largely to this theory by demonstration of pancreatitis in the human being resulting from lodgment of a stone in the terminal end of the duct. Obviously the junction of the pancreatic and common ducts must have a certain relationship in order for a stone to lodge at the terminal end and allow proper communication between the common bile duct and pancreatic duct. Recently, Rich

has suggested that acute pancreatitis was produced by a metaplasia of intraglandular duct epithelium to the extent that obstruction might result and rupture occur. Regardless of the theory considered, the activation of the trypsin in the absence of duodenal secretion has always been a stumbling block in the proof of pathogenesis. It has been assumed that the pancreas might, under abnormal circumstances, secrete activated trypsin or that bile and other tissue substances such as calcium might activate it. The fat necrosis, so commonly seen in acute pancreatitis, is produced by the action of steapsin on fat with the production of fatty acids and glycerin.

Acute Edematous (Interstitial) Pancreatitis.—

This type is far more common than the hemorrhagic type and probably is associated with different factors in pathogenesis, in so far as it may be produced by a simple obstruction of the duct itself, whereas the digestive action of the trypsin is the important factor in hemorrhagic pancreatitis. The acute edematous type undoubtedly can be produced by a stone lodging in the terminal end of the duct. Briefly, the symptoms consist of acute pain in the epigastrium extending to the left more than to the right and radiating frequently to the back near the midline. The patient may have nausea and vomiting associated with the pain, but commonly does not. Fever and leukocytosis are variable and may even be absent. Examination reveals tenderness in the upper part of the abdomen extending definitely to the left outside the location of the gallbladder. Frequently an acute exacerbation of a cholecystitis occurs with the pancreatitis thereby adding considerably to the difficulty in differentiation. If the patient is seen during the first twenty-four or forty-eight hours the diagnosis in this type of pancreatitis almost always can be made by a blood or urine amylase test which, as has been emphasized by Elman,² will show an elevation of amylase. During recent years it has been agreed definitely that the treatment of this type of pancreatitis should be conservative. However, since gallbladder disease exists in from 90 to 100 per cent of patients in this group, it is essential that the gallbladder disease be treated surgically at a subsequent date when the effect of the acute attack has worn off. Operative treatment

From the University of Illinois, College of Medicine, Department of Surgery.

Presented in part before the Kansas City Academy of Medicine, December 16, 1938.

consists of cholecystectomy and opening the common duct for stone if indicated. At operation the pancreas may still be indurated, and fat necrosis may still be visible surrounding it although ten days or two weeks may have elapsed since the acute attack subsided. It is remarkable that biopsy specimens removed from the pancreas in such instances will reveal a very small amount of pathologic change. We recently have appreciated that the type of pain complained of by these patients which can be attributed to the gallbladder will be eliminated by operation. It must be remembered, however, that the pain in the epigastrium which supposedly is caused by the pancreatitis frequently is not cured by operation. I have such a patient under observation now who had cholecystectomy one year ago for proved subacute cholecystitis and acute pancreatitis (two weeks previously) who is still complaining of the epigastric pain. It is true, however, in this type of patient we cannot prove that the pain is not due to some other condition such as biliary dyskinesia which consists primarily of a spasm of the muscles about the sphincter of Oddi. In the patient mentioned, however, it would appear more accurate to explain the persistence of symptoms on the basis of residual symptoms from the pancreatitis since we have operative proof of its existence.

Acute Hemorrhagic Pancreatitis.—As stated previously, the primary difference between this and acute edematous pancreatitis is that trypsin digestion has taken place with resultant hemorrhage and necrosis involving the pancreas itself. At times the entire organ may be hemorrhagic and edematous. The symptoms of acute hemorrhagic pancreatitis are much more fulminating than those encountered in acute edematous pancreatitis. In brief, they consist of rather sudden onset of severe epigastric pain frequently occurring three or four hours after a heavy meal. The pain is located typically in the epigastrium but may radiate to the back and may extend to the left and to the right of the midline in front. The patient may go rather rapidly into a state of collapse but the development of actual shock, which is so frequently described in textbooks, takes place relatively uncommonly as has been emphasized by Wangensteen.³ The temperature during the first several hours is apt to be subnormal and the pulse rate rapid and even thready. Tenderness is acute in the upper abdomen and muscle spasm is usually present. Nausea and vomiting are usually present frequently to an increased degree. There is commonly a past history of gallbladder disease. Diagnosis usually can be confirmed by a blood amylase test. In most cases the amylase reading will be elevated. It is quite probable, however, that in certain cases there will be no elevation and even a diminished level of amylase in the blood and urine. During recent years there has been an active controversy relative to advisability of operation in these cases. In a recent survey of the literature regarding this point, I personally came to

the definite conclusion that operation is not helpful and may be extremely detrimental in so far as it may hasten death. One of the reasons that operation seems inadvisable is that the surgeons advising laparotomy differ widely in their operative procedure. Some surgeons merely open the abdomen and insert a drain down to the pancreas. Others attempt to split the surface of the pancreas thereby hoping to drain the hemorrhagic tissue in it. Still others advocate cholecystostomy. It would appear that any beneficial effect of operation would be from drainage of material produced by the necrotic pancreas. Experiments have indicated that this blood stained fluid which accumulates frequently in large quantities is not toxic. Ireneus, working recently in our laboratory, injected the bloody fluid obtained from animals which had died from hemorrhagic pancreatitis produced experimentally and found no toxicity in mice or dogs. It seems preferable, therefore, not to operate upon these patients with acute hemorrhagic pancreatitis, particularly if the diagnosis can be made. Obviously, there will be occasions when it may be impossible to differentiate acute pancreatitis from a perforated ulcer. Not infrequently an elevated blood or urine amylase will make possible a diagnosis.

HYPOGLYCEMIA

Patients with the most pronounced symptoms of hypoglycemia are those suffering from adenoma or carcinoma of the islets. It must be remembered, however, that this group represents only a small percentage of the entire group of patients complaining of hypoglycemic symptoms. Hyperinsulinism due to tumor was first called to our attention by Wilder and associates in 1927 when they reported a patient having carcinoma of the islets. Since then numerous tumors of the adenoma type, presumably benign, have been removed by various surgeons. These tumors are usually single but occasionally multiple; they are encapsulated having a brownish pink color and are commonly located in the body or tail of the pancreas. They usually remain small, only occasionally attaining a size greater than 2 cm. in diameter.

Adenoma of the Pancreas.—The symptoms of hyperinsulinism due to adenoma of the pancreas are quite variable but usually dramatic. The first symptoms complained of are weakness and lassitude coming on particularly several hours after meals and commonly are noted in the morning before breakfast. The patient usually complains of being hungry soon after meals and commonly has a craving for sweet foods, particularly candy. On certain occasions the patient himself will discover that carbohydrates such as candy will eliminate a feeling of fatigue and weakness. Practically all cases of adenoma of the pancreas progress within a few weeks or months to the point where mental confusion is produced. The patient may do many things such as driving a car and have no recollection of his actions during that time. On many occa-

sions the mental symptoms progress to convulsions which are of the epileptic type and may even be erroneously diagnosed as epilepsy. If the patient is not relieved by removal of the tumor, mental deterioration of permanent character may develop. Very few neurological signs are present during these attacks. Obviously intravenous glucose will revive the patient from the state of coma or delirium almost instantly. Diagnosis in the advanced cases is usually easily made. Laboratory data will be of great assistance, particularly since the fasting blood sugar is found to be decreased to a level of 60 mg. per 100 cc. of blood or lower. Obviously the blood sugar will be lowest during attacks. Further confirmation can be obtained by a glucose tolerance curve. Commonly the curve will elevate no greater than the normal level of 100 or 120 mg. per 100 cc. after administration of glucose. A few hours later there is a characteristic drop so that during the fourth or fifth hour the blood sugar level may be considerably lower than the fasting specimen. The subcutaneous administration of adrenalin and pituitrin usually produces only a mild elevation in the blood sugar level although symptoms may be alleviated by the administration of these drugs. Occasionally a small dose of insulin (5 units) will produce a serious drop in the blood sugar level and may even throw the patient into semiconsciousness because of a severe hypoglycemia produced.

Naturally adenomas of the pancreas should be removed for correction of symptoms, particularly since the disease tends to progress and does not respond to medical treatment. Operation consists of exposure of the pancreas through the gastrohepatic or the gastro-colic omentum. Usually incision through the former site is preferable. If the tumor is on the anterior peripheral surface it will be recognized readily, and removed easily. Search must likewise be made on the posterior surface. Occasionally the tumor will be buried in the pancreas. If palpable it may be found and removed. Otherwise it obviously will not be detected and cure could be expected only if a subtotal pancreatectomy, which would include the tumor, is performed.

Idiopathic Hypoglycemia.—This type of hypoglycemia is far more common than the type produced by adenoma or carcinoma. Harris⁴ has been largely responsible for our appreciation of its importance. Although an actual hypertrophy or hyperplasia of the islets has been observed in a few cases, this finding is not consistent. The pathogenesis of this type of hypoglycemia is poorly understood. It is well known that hepatic insufficiency and diseases involving the pituitary gland or adrenal glands are commonly found to be important in the pathogenesis. In a study recently made by Martin and Hellmuth⁵ they noted that in a series of 404 cases of hypoglycemia encountered by them only one was diagnosed as pancreatic tumor. Of the total group, however, only thirty-six had definite symptoms. Twelve of this group had liver disease and five had

Addison's disease. It has been the experience of many psychiatrists that psychoneurosis is often associated with hypoglycemia. It is difficult to tell which is the primary lesion but in most cases the psychoneurosis is not a result of the hypoglycemia. Martin and Hellmuth call attention to the fact that 286 of their 404 cases of hypoglycemia had no symptoms. This is adequate corroboration of the fact previously known that hypoglycemia may be present without producing symptoms.

The symptoms produced by idiopathic hypoglycemia are similar to those described under adenoma of the pancreas except that they are rarely so severe. Unconsciousness and convulsions occur less commonly. Symptoms usually consist of weakness, headache, lassitude, nervousness and increased hunger a few hours after meals. It is true likewise that the glucose tolerance curve in idiopathic hypoglycemia will not be as striking as in adenoma of the pancreas. The blood sugar level is apt to be higher. There will likewise be an inconsistency in repeated curves. Treatment of this group of patients is at the present time undergoing marked revision and is beset with considerable controversy. In 1933 John⁶ recommended the administration of insulin along with a high fat diet. The purpose of the insulin is to eliminate the demand made upon the pancreas for production of insulin. By decreasing the demand for production of insulin John showed in a few cases that the pancreas could literally be trained to secrete less insulin. John has aptly emphasized, however, that this treatment is not recommended and will not be efficient in the presence of an adenoma. Two years ago Conn⁷ made the added suggestion that a high protein diet be given to this group of patients. He offers a diet of 50 grams carbohydrates, 110 grams protein and 150 grams fat as a trial diet and reports that such a diet likewise will decrease gradually the tendency of overproduction of insulin and tend to bring the patient somewhat toward insulin balance. Although insufficient time has elapsed since these two types of therapy have been suggested to allow proper evaluation, they would appear to offer sufficient hope to be worthy of trial in the treatment of idiopathic hypoglycemia. Subtotal pancreatectomy has been performed on a great many patients with idiopathic hypoglycemia. It has been found, however, that favorable results will be obtained in not more than half of the cases (McCaughan and Broun⁸).

PANCREATICOHEPATIC SYNDROME

Physiologists have known for some time that pancreatectomy in animals followed by administration of insulin and proper diet was apt to result in hepatic insufficiency and fatty infiltration of the liver. In 1932 Best and Hershey⁹ reported that if lecithin were added to the diet of dogs having had pancreatectomy and perhaps a small amount of insulin the fatty degeneration of the liver would be prevented. Later Best and associates¹⁰ found that choline, which is a component of lecithin, was per-

haps the important factor in the prevention of fatty degeneration. Dragstedt and associates¹¹ noted that raw pancreas would prevent the fatty infiltration of the liver and showed also that a substance could be extracted from the pancreas which would produce the same effect. This substance appears to be a hormone. They have named it lipocaic. In 1937 Snell and Comfort¹² reported two cases of pancreatic atrophy with hepatic lesions. Symptoms in this group of patients are variable and usually not very pronounced until the disease has progressed to a late stage. In one of Snell's cases the patient complained of pain, glycosuria and diarrhea. Later slight jaundice, marked ascites and edema appeared. One of these patients was treated successfully by Dragstedt's lipocaic.

I would like to present some clinical findings in a patient recently coming under my own observation, who had this disease. The patient was a 30 year old female who complained of epigastric pain of four months duration and tenderness radiating to the left shoulder. During the last three weeks she has been vomiting once or twice every day. Of interest in her past history was a Billroth No. II operation which was performed for duodenal ulcer in 1930. Two years later she had a hemorrhage from the gastro-intestinal tract which, on retrospect, was obviously caused by a gastrojejunal ulcer. At that operation the surgeon made a note that the pancreas was definitely invaded by the ulcer. The gallbladder was considered normal. During her present admission a gastro-intestinal series revealed a Billroth type of operation with a stoma which was functioning well. Cholecystogram revealed no shadow. Patient had considerable tenderness in the epigastrium and right upper quadrant extending also to the left. Symptoms were sufficiently severe to justify laparotomy, particularly since a large smooth mass could be felt in the epigastrium. At operation this large mass was found to be an enormously enlarged liver which had lost its normal pink-brown color. It was grossly white, tinged only faintly with yellow. The colon was adherent to the gastrojejunal stoma suggesting that a gastrojejunal or gastrocolic fistula had existed at some time. The gallbladder was badly diseased and contained many stones. The pancreas was atrophic and badly scarred. It was obvious that the patient had a seriously diseased gallbladder and an atrophic pancreas. We could not be sure that the residual pancreatitis was due to gallbladder disease but it seemed definitely not to be associated with the gastrocolic fistula. Since we had no symptoms of a gastrocolic fistula and negative findings on roentgenograms we considered that removal of the gallbladder focus would be indicated to prevent further damage to the pancreas and thereby hoped to save the liver, particularly if we could institute lipocaic therapy. On the fifteenth postoperative day the patient was allowed to be up. She soon became cyanotic and dyspneic and was put back to bed. In spite of therapy the symptoms of decompensation pro-

gressed and the patient died two days later. At postmortem the heart was found likewise to be the site of considerable fatty infiltration. The pathologic changes in the upper abdomen were about as described in the operative findings. Sections showed marked scarring of the pancreas with little pancreatic tissue remaining. The liver was a mass of fat globules. We were just contemplating the administration of lipocaic, through the cooperation of Dr. Dragstedt, when the cardiac attack occurred. This patient is a typical example of the pancreatohepatic syndrome and along with the cases reported by Snell, in which hepatic insufficiency and probable fatty infiltration was demonstrated, appear to justify consideration of pancreatic atrophy and fatty infiltration of the liver as being a definite syndrome. It would appear that Dragstedt's hormone, lipocaic, would be helpful and possibly curative in this type of case, particularly since Snell reported relief in one of his cases.

Pancreatic asthenia described years ago by Whipple as a syndrome consisting of weakness, rapid pulse, anemia, anorexia and vomiting is very likely related to the syndrome under discussion.

CARCINOMA OF THE PANCREAS

During the last few years distinct contributions have been made to the surgical consideration of carcinoma of the pancreas. Most of these are related to the treatment. Unfortunately, little new information is available regarding the diagnosis of carcinoma of the pancreas. It is well known that perhaps the majority of patients afflicted with carcinoma of the pancreas develop their symptoms insidiously. The obstruction resulting in jaundice comes on gradually and is usually not associated with pain. I do not wish to go into the manifestations of carcinoma of the pancreas except to emphasize strongly that patients with painless jaundice should not be abandoned from the standpoint of therapy and should be given the benefit which might be derived from a laparotomy if they are good surgical risks. The primary reason for this statement lies in the fact that not infrequently painless jaundice is present when the obstruction is produced by stone. As an example I would like to present briefly the symptoms presented by a patient which we have observed recently. This patient was a female, 55 years old, who had been jaundiced for almost three years. During this time she had naturally lost a great deal of weight and appeared very cachectic. She had no abdominal tenderness or mass. At operation we found a stone in the common duct and a gallbladder which was so badly diseased that it measured only 1.5 cm. in diameter. It seemed incredible that so much disease of the biliary tract could take place without more pain and distress. These cases, however, are being encountered right along and we must use this information in our consideration of the jaundiced patient. As a contrast I would like to present the primary complaints of another female patient, aged

54, who had been jaundiced but one month. Six months previous to the development of jaundice she had an attack of pain in the epigastrium and right upper quadrant which was severe and had continued to a lesser degree. Shortly before the development of the jaundice she had another attack of pain in the right upper quadrant which, however, radiated to the tip of the scapula and appeared to be a rather typical example of gallbladder pain. At operation a carcinoma of the terminal end of the common duct extending from the junction of the cystic and common ducts down to the ampulla of Vater was found. Metastatic nodes were encountered around that area and two or three nodules were felt on the gallbladder. It is barely possible that the carcinoma started originally at the ampulla of Vater and spread upward. Obviously from gross palpation it was impossible to differentiate these two possibilities. These two patients illustrate the unreliability of our textbook pictures of these two different diseases involving obstructions of the common duct. Obviously, the duration of jaundice in the first case would lead one to suspect that carcinoma of the pancreas would not be probable without gross evidence of metastasis.

On numerous occasions in the presence of obstructive jaundice and with induration in the head of the pancreas it will be impossible to differentiate between carcinoma of the head of the pancreas and a fibrosing, chronic but severe pancreatitis. The latter lesions are uncommon but appear often enough so that we must recognize their possible presence. I have had the embarrassment myself of having pronounced the death sentence upon a patient with jaundice and an indurated pancreas only to see him recover completely within a year and remain well. At operation all possible information must be utilized. The experience with a recent case emphasizes this point decisively. We had operated upon a relatively young man with painless jaundice of six weeks duration who at operation had what appeared to be a carcinoma of the pancreas or one of those atypical cases of extensive pancreatitis. If it had been pancreatitis the therapy perhaps would have been removal of the gallbladder which was slightly diseased. We found, however, three or four tiny white spots on the liver and removed one for biopsy. At operation we performed an anastomosis between the gallbladder and duodenum, not being positive of the diagnosis. However, when the sections of the tiny white area were completed a definite tiny patch of carcinomatous implantation was seen. We, therefore, felt much more capable of predicting to the patient's family what the outcome would be.

As stated previously, the greatest contribution to consideration of carcinoma of the pancreas made during recent years lies in partial pancreatectomy as suggested by Whipple and associates.¹³ Since their report in 1935 they, and various other surgeons, have reported numerous cases of carcinoma

of the pancreas treated by this operative procedure. In their recent publication of April 1938 they¹⁴ suggest a variation of their operative procedure consisting of a two-stage operation. The first stage consists of an anastomosis of the gallbladder to a cut end of the jejunum according to the Roux principle. At the second stage they resect the duodenum with the head of the pancreas and perform a gastroenterostomy. This principle obviously can be utilized only in patients where the carcinoma is confined to the pancreas or its immediate environs. It is likewise essential that the body of the pancreas not be involved so that a complete pancreatectomy will not be necessary.

Although postoperative hemorrhage is more common in jaundice associated with obstruction of the common duct by stone, it is nevertheless encountered not infrequently in carcinoma of the pancreas. Theoretically, we do not consider a postoperative death in a case of carcinoma of the pancreas to be as catastrophic as a death following an operation for a stone in the common duct. However, if a death from carcinoma of the pancreas can be avoided it should be done for many obvious reasons. During the last few years the causation and therapy of postoperative bleeding and jaundice have been clarified remarkably. For years we have known that the blood calcium, clotting time, bleeding time and blood fibrinogen were normal in these patients. It is true that we likewise have known that blood transfusions were helpful in the prevention and treatment of these hemorrhages. It had been suggested that hepatic insufficiency was responsible for this bleeding. The exact mechanism, however, was unknown until the work reported by Dam¹⁵, Quick¹⁶ and other authors on this subject. Confirmation that postoperative hemorrhage in these cases was due actually to a deficiency of some substances normally absorbed in the intestines and necessary for the coagulation of blood begins with the work of Dam¹⁷ (1934). Much credit should be extended to Roderick¹⁸ who noted in 1929 that the bleeding encountered in the sweet clover disease in cattle was associated with hepatic insufficiency and had to do with the blood clotting elements. Quick and associates have presented evidence that there is apt to be a deficiency of prothrombin in the blood in jaundice and that this deficiency is directly responsible for the bleeding. Smith and associates¹⁹ demonstrated that the deficiency of prothrombin might be as low as 30 per cent of normal before bleeding occurred. When the level went below this point bleeding was encountered quite consistently. They have outlined an elaborate method for the quantitative estimation of prothrombin and have confirmed the idea that prothrombin deficiency is the primary cause of the bleeding. Dam designated the deficiency factor as vitamin K. Snell and associates²⁰ have reported extensive clinical experience with the administration of vitamin K in the prevention and treatment of postoperative hemorrhage in patients with jaundice. It is well known that vitamin

K is absorbed poorly in the absence of bile salts. In the treatment of this type of patient several grams of bile salts must be given each day along with the vitamin K. At the present time vitamin K is not yet on the market except in the crude form. McNealy²¹ recently reported the successful treatment of the type of hemorrhage under discussion with large doses of vitamin D along with bile salts. Effort is being made at the present time to attempt to determine which of the jaundiced patients are apt to bleed following operation. The Ivy bleeding time, which consists of the determination of the duration of bleeding following a stick in the forearm with a blood pressure cuff on the arm at a pressure of 40 mm. mercury, was used effectively by McNealy in predicting which patients were apt to bleed. Other observers, including Snell and associates²⁰ and Ravdin²² have not had as fortunate results with the test. Snell is of the opinion that the prothrombin bleeding time, as instituted by Quick, is an accurate procedure in picking out the patients which may bleed. Recently Boyce and McFetridge²³ have attempted to utilize a simpler procedure called the serum volume index. Briefly, their test is performed by collecting 3 cc. of blood, allowing it to stand for four hours and measuring the amount of serum. They have found that patients who bleed are apt to have a lower ratio of serum than the normal person. The relative efficiency of one of these tests and therapeutic procedures cannot be determined at the present time since they are all so new that adequate experience is not available. It seems definite, however, that the treatment of jaundiced patients with vitamin K and bile salts in the prevention or treatment of bleeding is with us to stay.

PANCREATIC CYST

Little has been contributed to the subject of pancreatic cyst during recent years. It is known that most of the cysts of the pancreas are in reality pseudocysts which do not have a wall lined with epithelium but have a capsule or lining made up primarily of fibrous tissue. We likewise have known that pancreatic cysts were frequently caused by acute pancreatitis and by trauma inflicted in the neighborhood of the pancreas, particularly that sustained on the lower thoracic region of the back. The presence of manifestations consistent with the diagnosis of acute pancreatitis preceding the development of the cystic mass is not appreciated. I wish to emphasize this point by a brief description of a patient which illustrates how a diagnosis can be made differentiating it from some other types of abdominal cysts which are, of course, numerous. We recently encountered a middle-aged Negro woman presenting a history of an attack of severe epigastric pain extending to the left of the midline and to a lesser degree to the right during an attack seven months ago. This pain lasted several days and was excruciating. Nausea and vomiting were present but recovery gradually took place. There

had been a history of mild dyspepsia during the preceding year which may or may not have been indicative of chronic cholecystitis. A month after the severe attack of pain in the epigastrium the patient noted a mass in the epigastrium. This mass grew gradually during the five months up to entrance to the hospital when it was easily as large as one's head. The blood amylase was normal in this patient as it is in about half of the patients with pancreatic cyst. This test will be of help, therefore, only if an elevated reading is found. At operation the cystic mass was found to be presenting from the retroperitoneal region of the gastrohepatic omentum pushing the stomach far to the left. The mass could be palpated definitely as being connected with the pancreas over a broad base. This connection was more readily observed after the cyst was opened. If we can, therefore, demonstrate an attack typical of acute pancreatitis, or obtain a history of trauma over the abdomen or back a few weeks or months preceding the development of the cystic mass, we will have good presumptive evidence that the mass is a pancreatic cyst. The location of the mass pushing the stomach laterally, which may be demonstrable by roentgenogram, is also helpful; in fact the roentgenologist is usually able to make the diagnosis of pancreatic cyst with relative accuracy if this finding is demonstrable. Treatment of pancreatic cyst remains unchanged, consisting usually of marsupialization which is quite satisfactory; only in rare instances will excision be possible.

1853 W. Polk Street.

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THE FEMALE SEX HORMONES

A DIGEST

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The purpose of this paper is to survey the more important recent advances in the physiology and pathology of ovarian activity, directing attention to more accurate methods of study of ovarian dysfunction to the end that such cases will be better understood and more rationally handled. Recent data have accumulated so rapidly, and in many instances reports are so conflicting, that the casual reader on the subject is left in a haze. In addition, the terminology has not yet been standardized, further confusing the field.

To accomplish its purpose this survey will of necessity be simple and direct. No attempt will be made to review thoroughly the voluminous literature and controversial issues will be avoided in so far as possible. Reference will be made only to the more important articles. The authors are fully cognizant of the dangers of oversimplification, particularly in a subject which is still in a state of flux. However, even at the expense of appearing overly didactic, we feel that the field of female sex hormone is in such crying need of clarification that we present this digest.

PHYSIOLOGY OF THE OVARY

There are two ovarian hormones: (1) estrin, known also as follicular hormone, theelin, folliculin, progynon, and (2) progestin, or the corpus luteum hormone.

1. *Estrin*.—The work of Allen and Doisy in 1923¹ conclusively proved that there was a potent hormone in liquor folliculi. The physiological activities of the hormone are briefly as follows:

(1) It induces estrus in immature animals, in castrated animals and in normal animals not in estrus. This is demonstrated by hypertrophy of the uterus with proliferation of its glands, and by typical changes in vaginal epithelium which will be discussed later.

(2) It prevents the otherwise inevitable atrophy of the accessory reproductive organs consequent to ovariectomy.

(3) Its injection into the immature male animal retards development of sexual maturity. In the adult male there are retrogressive and degenerative changes in the genitalia following injection.

(4) It does not stimulate the ovary; rather, repeated injections cause a decrease in size of these organs. This effect is probably indirectly through the pituitary.

(5) In castrated female monkeys, if a series of injections of estrin be given and then stopped, bleeding, resembling menstruation, occurs. Werner and Collier² made similar observations on women in artificial menopause.

Doisy³ and his associates isolated pure estrin in crystalline form from urine in 1929. It has the empirical formula $C_{18}H_{22}O_2$ and possesses a ketone and hydroxyl group. To this compound Doisy gave the name theelin. This compound is now called estrone under the newly standardized international terminology.

A second and closely related compound, containing hydroxyl but no ketone groups, has the empirical formula $C_{18}H_{24}O_3$. This compound was named theelol by Doisy and under the new terminology is called estriol.

A third form, prepared by the reduction of the ketone group in estrone to a hydroxyl group is called dihydroestrin or estradiol. It is more potent in estrogenic activity, particularly when administered by mouth, than either of the foregoing compounds.

The chemical configuration of these compounds is shown in figure 1, so that their similarity can easily be perceived and can be compared with the formula for progestin, given in figure 2. Each compound is named according to the international terminology and in parenthesis are some of the synonyms and trade names. The term "estrin" is reserved for the actual physiological product of the ovary while "estrone," "estriol," and other terms are extracted or synthetic products.

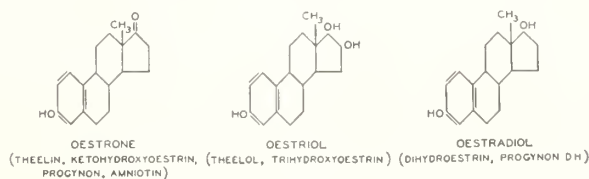


Fig. 1.

Estrin, along with hormones of the corpus luteum and testes, belong to the group of sterols or higher alcohols and is related chemically to cholesterol.

The basic nucleus of estrin is benzantracene. This is of interest because related compounds have been prepared synthetically which when painted on the skin of experimental animals are capable of producing malignant degeneration. Some of these compounds possess mild estrogenic activity.

The exact source of estrin in the human body is not known for certain since it is so widely distributed. The hormone is present in greatest concentration in the liquor folliculi suggesting the thecal cells as the secreting organ. However, it can be extracted from ovaries in which the follicles have been destroyed by roentgen ray. It is even demonstrated in the adult male in the testes, blood and urine. Estrin is present in the urine of pregnant women in high concentration. The human placenta also contains large quantities of estrin. It is believed that the placenta actually manufactures this hormone since women ovariectomized during the latter months of pregnancy continue to secrete large quantities of estrin.

Progesterin.—After rupture of the follicle and discharge of the ovum the cavity becomes filled with blood. The clot is soon replaced by a mass of cells containing a yellow lipoid substance, thus forming the corpus luteum. If fertilization of the ovum does not occur the corpus luteum soon regresses. In the human its life is only about ten days. If, however, the ovum is fertilized and implanted the corpus luteum continues to grow during the early months of pregnancy. After midterm it begins to shrink and is finally absorbed by about the seventh month.

It is thus suggested that the corpus luteum is essential to gestation, and such is found to be the case. The hormone has been named progesterin to indicate its chief function. Progesterin is responsible for changes in the uterine mucosa preparatory to the implantation of the ovum, the premenstrual changes of the higher animals. In rabbits, destruction of the corpus luteum causes termination of pregnancy. While this is not exactly true in the human, since the removal of the corpus luteum does not invariably cause abortion, yet the presence of progesterin is essential for a normal pregnancy. Certain cases of habitual abortion in the human are thought due to deficient progesterin formation and such patients react favorably to its administration.

Corner and Allen⁴ obtained an ovarian extract which contained the active principle of corpus luteum which they called progesterin. Injection of this extract resulted in typical progestational changes in the uterine mucosa of castrated rabbits. Administration of both estrin and progesterin is necessary to produce the premenstrual endometrium in castrated women. On cessation of the injections menstruation occurs. The follicular hormone apparently initiates the proliferative changes in the uterine mucosa of the human, which are brought to completion by the hormone of the corpus luteum.

As has been mentioned previously, surgical removal of the corpus luteum in pregnant rabbits invariably results in abortion. Injection of progesterin

in such animals enables them to continue pregnancy to full term.

Progesterin has been shown to inhibit response of the uterine musculature to pituitrin (Knaus reaction). The excised uterus of a rabbit previously treated with progesterin does not respond to pituitrin, even in high concentration. It also has been shown that the motility of the intact uterus is suppressed by progesterin.

Another definite function of the corpus luteum hormone lies in its ability to inhibit follicular maturation and suppress ovulation. It is a well known fact in animal husbandry that squeezing the corpus luteum from the cow's ovary by manipulation through the rectum hastens the onset of the next estrus cycle. Injection of progesterin inhibits ovulation in guinea pigs. This function of the corpus luteum has as its purpose the prevention of a second pregnancy being superimposed on the first (superfetation).

Progesterin has been obtained in crystalline form and has been synthesized. The compound has been named progesterone, the term progesterin being reserved for crude extracts of the gland and the hormone as secreted by the intact gland. The chemical formula for progesterone is given in figure 2. Its close similarity in structure to estrone is obvious.

Progesterone.—Before leaving the subject of the chemistry of the two ovarian hormones it is worthwhile to consider their chemical similarity to the male sex hormone. The formula of testosterone is given in figure 2 for comparison.

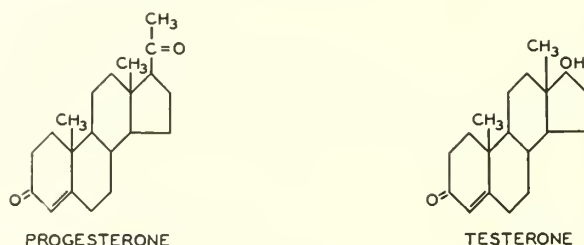


Fig. 2.

PITUITARY INFLUENCE: GONADOTROPIC HORMONE

The pituitary has been justly termed the master endocrine gland. A great variety of functions have been described for this anatomically small but physiologically important organ. The literature is voluminous and most confusing; so, for the purpose of this paper, we will confine ourselves to its influence on the ovary.

It had long been known that the hypophysis exerted an influence on the sex glands. Experimental removal in animals invariably resulted in atrophy of testes and ovaries. It was Evans⁵ who first showed that the pituitary caused enlargement of the ovary and increase in size and number of the graafian follicles.

Aschheim and Zondek⁶ showed that there were two distinctly different effects of the anterior lobe on the ovary. The first effect was follicle stimula-

tion, the second stimulating luteinization. These effects were, they believed, due to two different hormones which they called prolan A and prolan B respectively. They were able to separate these two hormones relatively successfully.

Working with immature female mice they showed that prolan A caused maturation of the follicles. There was increased production of estrin. The vagina, which was previously closed, opened, and the vaginal epithelium changed from columnar to squamous. These are the phenomena of estrus and occurred in the mice within one hundred hours after injection of the extract. These effects could not be reproduced in the absence of the ovary, showing that the effect of prolan A is limited to stimulation of the ovary and that it does not directly affect the vagina or uterus.

Prolan B, the luteinizing hormone, in so far as it stimulates the corpus luteum, is antagonistic to prolan A. It tends to increase the size of the corpus luteum and the amount of progesterin secreted; thus this hormone tends to inhibit estrus and estrin production.

Later Aschheim and Zondek⁷ showed that both hormones are present in the blood and urine of pregnant women. Injection of the urine of pregnant women into immature female mice resulted in ripening of the follicles and typical estrus. The ovaries showed small reddish spots caused by hemorrhage into some of the unruptured follicles. Finally, some of the follicles in which the ova were still retained, showed evidence of luteinization. This discovery laid the basis for the now standard Aschheim-Zondek test for pregnancy.

Later Friedman⁸ modified the test by using rabbits instead of mice. Rabbits ordinarily ovulate only after copulation. After the intravenous injection of from 5 to 10 cc. of pregnancy urine into a virgin rabbit the results are ovulation in from twenty-four to thirty-six hours. The percentage of accuracy of either of these tests is high.

Aschheim and Zondek assumed that the gonadotropic effects of pregnancy urine were due to the hormones elaborated by the anterior pituitary. They assumed that the pituitary became more active during pregnancy so that more of the hormones were secreted and overflowed into the urine. This assumption was quite logical because of the similarity of gonad stimulating effects of pituitary extracts and pregnancy urine.

Additional work, particularly by Collip⁹ and his colleagues, has cast doubt on this theory of the origin of the active substances in pregnancy urine. It was shown that pregnancy urine does not supply the deficiency of gonad-stimulating hormones after experimental hypophysectomy. Besides, reagents which are effective in extracting the urinary principle do not yield active extracts of the pituitary. Collip believes, and with good reason, that the active principle of pregnancy urine is a single substance with a two-fold action which is derived from the placenta. He calls this substance the anterior-

pituitary-like principle (A. P. L.). This is the familiar commercial preparation known as antuitrin S.

It should not be supposed that the pituitary-ovarian relationship is entirely one-sided. Rather, there is a reciprocal effect. Ablation of the ovary either by castration or natural menopause carries a stimulation of the pituitary with increased number of basophil cells. These cells apparently produce follicle-stimulating hormone for after removal of the ovarian influence there is a marked increase in this hormone in both blood and urine. In contradistinction to the active principle of pregnancy urine, the follicle stimulating principle in castrate urine answers all the criteria of a true pituitary hormone. In other words, it supplies the deficiency of follicle-stimulating hormone in hypophysectomized animals.

MENSTRUATION

In man and the other primates the female reproductive organs pass through cyclic changes which occur approximately every twenty-eight days. This menstrual cycle is comparable to, yet quite different from, the estrus of the lower forms of mammals. The most obvious feature of the cycle is the regular show of blood from the vagina. The uterus, from whence the bleeding originates, shows a rhythmic change in its endometrial lining which is initiated and controlled by hormonal action. The anterior lobe of the pituitary is primarily responsible for the regular recurrence of the cycle through its influence on the ovary. The balance is so delicate, however, that all the endocrines exert their influence on the cycle either directly or indirectly. Slight variations from the normal in the endocrine balance are likely to show marked effects on the menses.

The uterine changes in the human cycle may be divided roughly into three stages.

1. *The Stage of Proliferation.*—Immediately after the cessation of the menses the epithelium of the endometrium is restored. The endometrium becomes thickened, the glands become deeper and more prominent. The uterus enlarges due to the growth of its stroma. Ovulation occurs near the end of the proliferative stage, which is dependent upon the action of estrin. This stage corresponds to the pre-estrus stage of the lower animals.

2. *The Premenstrual Stage, or Stage of Differentiation.*—This stage commences after ovulation and is dependent upon the action of the corpus luteum. Its purpose lies in preparation of the uterus for implantation. The glands become deeper and coiled. Their secretion is increased. The endometrium resembles the decidua of early pregnancy.

3. *The Stage of Menstruation.*—If implantation does not take place, the hypertrophied endometrium breaks down, hemorrhage occurs and the superficial layers of the mucosa are shed.

Corresponding to and controlling these uterine changes there are rhythmic changes in the ovary. During the stage of proliferation, the graafian fol-

le is developing, elaborating estrin. Rupture of the follicle, ovulation, occurs in the middle of the cycle, from fourteen to sixteen days after the first day of the previous menstrual period in a twenty-eight day cycle. Subsequently the corpus luteum forms and its secretion of progestin causes and controls the second or premenstrual stage of the endometrium as has been previously explained. These changes in the ovary are under the direct influence of the anterior lobe of the pituitary.

It is entirely possible to have uterine bleeding without ovulation. In the strictest sense of the word this does not constitute true menstruation. When such anovulatory bleeding occurs, there is no corpus luteum formed and of course no second or premenstrual stage in the endometrium. Apparently the estrin production of the ovary stimulates proliferation of the endometrium and the sudden cessation of estrin secretion results in some hemorrhage from the endometrium. Similarly it has been shown that castrates will exhibit uterine bleeding a few days after cessation of treatment with large doses of estrone.²

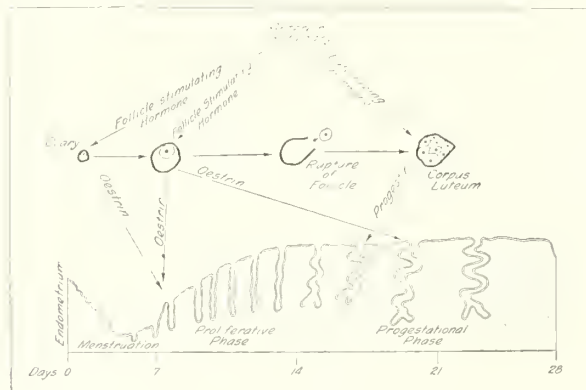


Fig. 3.

Figure 3 shows graphically and diagrammatically the sphere of influence of the pituitary and ovarian hormones on the menstrual cycle.

METHODS OF ASSAY

In presenting the methods of assay of the various female sex hormones, the authors have no intention of giving precise and accurate directions for the various tests, but rather of indicating in a brief and nontechnical way the general principles of the tests. More accurate directions can be obtained by reference to the original articles.

1. Estrin can be rather roughly determined in blood by the method of Frank and Goldberg.¹⁰ The disadvantage of the test is that a rather large amount (40 cc.) of blood is required and the results because of the relatively small amount of material cannot be accurately titrated but must be expressed as negative or relative degrees of positive.

Forty cc. of blood is collected and rubbed with 30 grams of anhydrous Na_2SO_4 . The residue is extracted with ether. The ether extract contains the estrin and the residue can be saved for gonadotropic

assay. The ether is evaporated and the residue taken up with olive oil or emulsified with water. The oil or water is injected in castrated female mice and the presence of estrin determined by the vaginal smear. A negative smear is characterized by the presence of leukocytes mainly. If the animal, however, goes into estrus as the result of injection, the smear shows a considerable number of epithelial cells. The number of these cells constitutes a rough estimate of the degree of estrus.

A more accurate method is available for the determination of estrin in the urine. Most workers in this field are using this method of Smith and Smith¹¹ or some modification. A twenty-four hour urine specimen is collected and an aliquot portion of about 500 cc. taken. Enough concentrated HCl is added to make a final percentage of 15 per cent and is boiled for ten minutes. It is then extracted with benzene in a special continuous extractor for from eight to ten hours. After this the benzene is evaporated and the residue taken up in olive oil. The olive oil extract is assayed by use of castrated female mice or rats as described above. The assay is repeated with decreasing amounts of the solution until a point is reached when the amount injected is so small that it will not cause estrus in the animal. The smallest amount of estrin which will cause estrus in a mouse or rat is called one mouse or rat unit. In this manner the amount of estrin in the original twenty-four hour specimen can be fairly accurately determined.

Several colorimetric tests for the determination of estrin have been proposed but their reliability have not yet been proved.

2. Progestin can be biologically assayed by its effect on the endometrium and on the growth of a fertilized ovum. Pincus and Werthessen¹² suggest a method in which a rabbit doe is ovariectomized twenty hours after mating. It is then injected with progesterone and killed on the fifth day. By comparing the diameter of the ovum with the ratio of glandular to stromal portions of the endometrium, they arrive at a formula which expresses the amount of progestin injected. Obviously this method is too complicated for other than research purposes.

Venning¹³ has recently suggested a chemical method for measuring progestin in urine. Progestin is believed to be excreted as the physiological compound called sodium pregnandiol glucuronide. The method merely comprises the isolation and weighing of this compound. Although still too complicated for routine use, the method appears to be very accurate.

3. Although uterine biopsies at intervals during the cycle are not strictly speaking an assay for hormones, examination of the endometrium casts considerable light on the physiology of the ovary. It is a procedure which can be simply done without anesthesia by the use of a small suction curette. An article by Rock and Bartlett¹⁴ gives the results of normal and abnormal findings in a large number of biopsies.

4. The presence or absence of prolactin or gonadotropic factor in blood can be determined by the method described by Frank, Goldberger and Spielman.¹⁵ Forty cc. of blood is treated as for estrin determination, the residue from ether extraction is saved and dried. This powder is extracted with 60 per cent alcohol and the alcoholic solution cleared by centrifuge. The alcohol is evaporated and the dry powder remaining contains the gonadotropic factor. This is dissolved in a small amount of water and the solution injected into immature mice or rats. Presence of gonadotropic factor is determined by development of follicles and luteinization in the ovary. The smallest amount which will produce this change is one mouse or rat unit.

The determination of prolactin in the urine depends upon its insolubility in acetone according to the method of Katzman and Doisy.¹⁶ Urine is acidified and treated with acetone saturated with benzoic acid, the precipitate is collected, washed and redissolved in dilute alkali after neutralization; acetone is again added and the precipitate collected and dried. The powder is soluble in water and can be assayed by injecting varying amounts in immature mice or rats and observing the effect on the ovaries.

CLINICAL AND PRACTICAL CONSIDERATIONS

Endocrinology and organotherapy have progressed with such leaps and bounds in recent years that even the experienced investigator may be confused and left in a quandary of conflicting reports. Particularly is this true in the clinical application of experimental data. Many of the clinical reports are based on insufficient data and poorly controlled experiments. They frequently represent the unscientific opinions of overenthusiastic investigators. Add to these the glowing reports of commercial houses attempting to promote their glandular products and one has a picture of the dilemma of the harassed clinician. Novak¹⁷ has aptly expressed the situation, "Everyone feels that gynecological organotherapy is, on the whole, disappointing, and yet the feeling is universal that it is in this direction that one must look for improvement in methods of treating the functional gynecological disorders."

The authors feel that the cause for the poor and inconstant results of glandular therapy in ovarian dysfunction lies not primarily in the glandular products themselves for we believe that the reliable pharmaceutical houses have made an honest attempt to produce potent and conscientiously assayed extracts. Rather the fault lies with the clinician who has been unable to study and evaluate his cases properly. To our mind, it is just as irrational to diagnose and treat thyroid disorders without basal metabolism as to attempt to treat ovarian disorders without the necessary assays.

The facilities for hormone study and assay have been limited in the past to a few large research centers and have not been available to the profession at large. The methods for estrin assay in blood and urine and the prolactin analysis of the urine, how-

ever, have been sufficiently standardized to be of clinical use. These combined with uterine biopsies and careful clinical studies of the patient should give the clinician a fairly accurate idea of the status of the patient and a good lead to the necessary therapy.

In classifying ovarian dysfunction, Frank¹⁸ has divided the conditions into two types: those caused by an underfunction or complete lack of function of the ovary, and those wherein the ovary is hyperactive. While this classification probably represents an oversimplification of a complex situation and fails to take into account the influences of other hormones, notably the gonadotropic portion of the hypophysis and the corpus luteum, yet it will serve as the basis for discussion of various clinical conditions with their endocrine background. We shall present a number of clinical manifestations, some generally recognized to be associated with ovarian dysfunction and others not usually so considered, and discuss the results of estrin and prolactin determinations in blood and urine associated with these conditions.

1. *Menopause*.—The symptoms associated with both artificial and natural menopause long have been considered the result of lack of ovarian secretion. The discovery of crystalline-estrogenic hormone and its use as replacement therapy have markedly alleviated if not completely relieved the distressing vasomotor symptoms and the marked nervous irritability and instability. Typically both blood and urine show a low level if not complete absence of estrin and a failure to exhibit the usual cyclic variations. Simultaneously there is a marked increase in prolactin (gonadotropic factor) which apparently results from removal of the ovarian inhibition of the anterior lobe of the pituitary. Uterine biopsies show an atrophic endometrium with no evidence of progestational or cyclic changes.

In the usual and typical case with climacteric symptoms, or following complete castration, the condition is so well understood and easily recognizable that hormonal assays shed but little light on the clinical management. However, not infrequently the general nervous symptoms resemble a mild primary hyperthyroidism and sometimes the condition is so diagnosed. The clue to the diagnosis lies in a diminished output of estrin in the urine, the calculated monthly output falling below 1200 mouse units. The double peaks of estrin excretion are lacking, or at least markedly diminished. Usually the prolactin excretion is within normal limits and uterine biopsies show the normal cyclic changes in the endometrium. In such cases, adequate replacement therapy properly timed should control the symptoms.

Cases of premature menopause are seen occasionally in which the menses cease for from six to eleven years and then spontaneously are resumed. Obviously in the interval the ovaries have not been completely inactive but rather there has been an endocrine imbalance which did not allow normal menstruation. Only careful study can uncover such

a condition which, when found, should be treated with a gonad stimulating hormone (anterior pituitary-like or actual gonadotropic factor) rather than attempting replacement therapy with estrin.

2. *Vaginitis*.—Senile vaginitis which occurs after the menopause and which is characterized by an atrophic, smooth vaginal mucosa, frequently inflamed and irritated to a degree that it is mistaken for kraurosis vulvae is generally conceded to result basically from a deficiency of estrin. It is not so commonly recognized, however, that a similar condition can occur prior to the menopause. Such a diagnosis can be proved only by the demonstration of deficient estrin excretion.

Shute¹⁹ has reported an interesting observation which gives rise to considerable speculation. Based upon his own test for estrin in the blood, he has found an excess of estrin in the blood of certain postmenopausal and castrate patients who have vaginitis. These patients do not respond to administration of estrone but do react dramatically to large doses of vitamin E.

3. *Mastitis*.—Cutler²⁰ contends that chronic cystic mastitis is essentially an endocrine disorder resulting from deficient estrin secretion. Treatment of these cases with injections of estrin has resulted in equivocal success. Such inconstant results, at times dramatic success and at others complete failure, suggest improper selection of cases. Certain it is that the cases of tender, swollen breasts occurring periodically in relation to the menstrual cycle show almost uniformly a low estrin secretion and a failure to attain the midcycle peak of urinary excretion. Supplying the estrin in adequate amounts and so timed as to parallel the normal curve frequently yields gratifying success.

It is well, however, to remember that estrin is not the only hormone which affects the breasts. Breast changes can be divided into three stages, (1) mammary growth which occurs at the time of puberty; (2) further enlargement of the glands at the time of pregnancy, (3) the actual secretion of milk.

The first stage is initiated by the production of estrin since it can be caused prematurely by its administration. Large doses of estrin also prevent atrophy of the breasts subsequent to castration. The second stage is influenced by progesterone from the corpus luteum. The actual secretion of milk is controlled by a hormone from the anterior lobe of the pituitary called prolactin.

In view of this multitude of influences it is not surprising that all cases of painful breasts or cystic mastitis do not respond similarly.

4. *Amenorrhea*.—The treatment of amenorrhea presents one of the most difficult and obstinate problems with which the clinician has to deal. The condition is so common and there are so many false notions and myths about it among the laity that the doctor often finds it necessary to administer treatment for psychological reasons even though he realizes its inadequacy. The multiplicity of factors which can produce this condition call for a most

careful study of the patient with minute attention to detail if any modicum of success is to be expected.

The general condition of the patient should receive careful attention. If the nutrition of the patient is poor, attempt should be made to correct it. Foci of infection should be sought for and removed. Any evidence of lowered thyroid activity calls for adequate administration of thyroid extract. The importance of this attention to the general condition of the patient is obvious, yet in the majority of cases this alone will not restore the menses.

If the assays indicate that ovarian function is practically lacking and that the ovary does not respond to pituitary stimulation, the administration of the gonadotropic factor or anterior pituitary-like factor will of course be useless. In such an instance menstrual bleeding can be produced only by substitution therapy, using estrin and progesterone in large amounts and appropriately timed. In many cases uterine bleeding can be produced, but only so long as the treatment continues. Such heroic organotherapy is indicated only when conditions other than the mere failure to menstruate demand a simulation of the normal cycle.

The majority of the cases of amenorrhea, however, show merely a diminished ovarian function either in respect to estrin output, or progesterone or both. The rational treatment is one of stimulation with the gonadotropic factor, supplementing this with moderate doses of estrin or progesterone as the case demands. The use of anterior pituitary-like factor has been widely advocated in the past with but poor success. We believe, however, that more careful study will reduce the number of failures.

5. *Menorrhagia*.—Functional uterine bleeding is not infrequently of such severity as to demand prompt and radical treatment. Radiation and even hysterectomy have been resorted to to prevent the patient from exsanguination. Such measures while effective should be the last resort, particularly in younger women. Fortunately organotherapy can offer a good chance of relief in these cases providing it is pursued intensively enough.

Most of these cases show a normal or high estrin secretion so the use of estrin injections advocated by some men seems illogical. The fault usually lies in a deficiency of progesterone. The endometrium, although hyperplastic, fails to show the typical progestational changes. The administration of large quantities of progesterone usually will control the bleeding. The use of anterior pituitary-like hormone also is rational in an attempt to stimulate the corpus luteum to greater secretory activity. Of course, before any organotherapy is attempted, careful search must be made to rule out local uterine pathology.

6. *Sterility*.—In the treatment of sterility in the female, estrin assays and organotherapy have their definite place. While it is probably true that the majority of cases have organic or mechanical causes for their inability to conceive, and that all cases deserve a careful local study including proof of the

patency of the tubes, there remains a rather large group in which no pelvic pathology can be found and whose sterility is dependent upon a functional endocrine condition. The various endocrinopathies which can result in sterility are too numerous and manifold to be discussed here, but one condition deserves passing mention because it gives a definite picture in which the line of treatment is obvious, although its success is not necessarily assured. This is the condition in which the sterility is due to failure to ovulate. In such cases the estrin analysis of blood and urine show a normal or perhaps a high content of the follicular hormone. Uterine biopsies disclose that the endometrium fails to show any progesterational changes which result from a deficiency or absence of the corpus luteum hormone. These patients frequently menstruate apparently normally, the so-called anovulatory menstruation. Treatment should be aimed at stimulating ovulation and corpus luteum formation. In the past the use of antuitrin S, the anterior pituitary-like principle, has been moderately successful. More recently the use of pregnant mare's serum, highly purified (gonadogen), in adequate doses seems to offer a promising lead.

7. Premenstrual Tension.—Frank²¹ some years ago described a condition which he called premenstrual tension which is characterized by general nervous symptoms varying in degree from rather mild irritability to actual psychotic manifestations and occurring a short period before actual menstruation. There is typically an abnormally high estrin content in the blood at this time, usually accompanied by low or even no urinary excretion. Concomitantly there is a deficiency of progestin. More recently an article has appeared by Israel²² in which the author uses large doses of progesterone. This is a highly rational suggestion since progestin is the physiological antagonist of estrin. The authors report satisfactory results in the few cases treated. This is one condition the presence of which might be suspected clinically but the definite diagnosis depends on hormonal assays.

8. Other Endocrine Disorders.—Comparatively little is known or reported on diseases of other endocrine glands in so far as they affect ovarian function. A wide and interesting field for research is open for the study of prolan and estrin in these endocrinopathies. It is not within the scope of this paper to present any original work or to speculate upon unsolved problems, but simply to stimulate interest and illustrate the breadth of the problem.

Abnormalities of the thyroid are known to affect the menstrual cycle and fertility. Particularly is this true in thyroid deficiency states where estrin secretion is usually low. The simple correction of this deficiency by feeding thyroid is frequently, although not by any means always, sufficient to correct ovarian dysfunction.

The relationship of the pancreas to the ovary is not commonly recognized. Animal experimentation seems to indicate that estrin has some influence

upon carbohydrate metabolism. The authors have an interesting case in point which they plan to report when the data are completed. A young woman who was known to have severe diabetes for at least ten years was under fair control with insulin and diet. Recently she noted a decrease in menstrual flow with marked irregularity in periodicity. Associated with this were nervous symptoms and hot flashes. Estrin analyses showed a marked diminution in total output and a failure to attain a normal midperiod rise. Administration of rather large doses of estrone, properly timed, not only relieved her symptomatically but produced an unexpected increase in carbohydrate tolerance so that her insulin intake had to be decreased.

That the adrenals influence primary and secondary sexual characteristics is common knowledge. Frank²³ has reported several cases, however, of adrenal malignancy where the urinary estrin output is so high that the unextracted and unconcentrated urine contains enough estrin to produce estrus in the castrated mouse. The pituitaries as would be expected have a direct influence but little is known about the estrin and prolan content in humans suffering from pituitary disease.

CONCLUSIONS

The authors have attempted to collect and clarify present day knowledge of ovarian physiology and methods of analyzing function. They feel that the time has come for a more rational approach to the diagnosis of conditions affecting these glands. By stimulating interest in the methods at hand it is hoped that there will be a wider understanding of these endocrine dysfunctions in the human and a more satisfactory response to treatment.

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SYMPOSIUM ON CONSERVATION OF EYESIGHT

OPHTHALMIA NEONATORUM

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ETIOLOGY

Babies' sore eyes is one of the most frequent of all diseases when prophylaxis is neglected. Before Crede from 10 to 30 per cent of newborn babies developed ophthalmia. This disease formerly accounted for more than 30 per cent of the known blind and still accounts for from 30 to 60 per cent of the inmates of blind asylums.

Ophthalmia neonatorum is not a disease entity but may be produced by various infectious organisms. With wide variations in different localities, the majority of the cases, and particularly the severe cases, are caused by the gonococcus. Groenouw's figures have been considered average. He found about half the cases gonorrheal; he could not identify the organism in about one third and the other one sixth of the cases were due to *B. coli*, pneumococcus, staphylococcus and streptococcus. McKee, using an improved technic, in a series of seventy-four cases found gonococcus in forty-three, inclusion bodies in six and in only one case was he unable to identify the organism.

The incubation period varies as follows with the different organisms: gonococcus from one to three days, pneumococcus from five to seven days, streptococcus from eight to fourteen days, inclusion bodies from seven to nine days (Duke-Elder). A gonorrheal ophthalmia occurring after the fourth day cannot be considered to have been contracted during birth. In prolonged dry labors there is some possible danger and babies have been born with fully developed ophthalmia neonatorum.

At birth the eyes are tightly closed, the skin covered with a fatty substance and the lids usually glued together with a fatty meibomian secretion and epithelial debris. Only occasionally are the eyes open and then most frequently they have been forced open by forceps, fingers of the obstetrician or by pressure of a very tight perineum. Long labors, especially with face presentation during which the eyelids are forced open, are most dangerous as far as ophthalmia neonatorum is concerned.

DIAGNOSIS

Even the slightest watery discharge from the eyes of the newborn should arouse suspicion since tears are absent. The seriousness of the discharge is confirmed by a slight redness of the conjunctiva which rapidly passes to a marked thickening of the conjunctiva and of the entire lids, especially the upper lid which soon becomes a swollen hot

dusky tense mass overhanging the lower lid and even resting upon the cheek. At this stage the diagnosis cannot be missed. But since early treatment is imperative it is necessary to make the diagnosis long before this stage. Therefore one should never fail to make smears from any baby when even slight discharge is present lest on the next day he be presented with a fully developed ophthalmia neonatorum. This is required by law in England and, according to Duke-Elder, such a requirement is the second most important means of controlling the disease. It is important to make epithelial smears if the secretion shows no organisms, and indeed in any case epithelial smears are more reliable. McKee's technic (1912) with which he was able to identify the organism in more than 98 per cent of the cases was as follows: With an ordinary ear curet the conjunctiva of the lid is gently stroked so that some of the epithelial cells may be removed; the material is carefully spread upon a slide, dried in air, fixed in 80 per cent alcohol for ten minutes and stained with Giemsa (1 to 20). Gonococci and inclusion bodies are frequently found together by this technic.

CLINICAL COURSE

There is great variation in the severity of the disease depending on the organism present and the individual resistance of the patient. In the usual case the swelling and congestion increase for two or three days, remain constant for two or three days, and then the swelling subsides somewhat ushering in the stage of blennorrhea. The flow of pus persists for from four to six weeks and may be followed by a chronic blennorrhea.

The conjunctival and lid inflammation, however, in themselves are unimportant since these structures always return to normal. The one important thing is the state of the cornea. Gonococci invade the epithelium of the cornea in the same manner as they invade the epithelium of the conjunctiva or the mucosa of the genito-urinary tract, and by direct invasion may produce corneal ulcers. Such ulcers appear anywhere on the cornea but especially beneath the rim of overhanging chemotic conjunctiva where pus collects. The cornea is nourished perhaps chiefly by the conjunctival blood vessels. So long as the bulbar conjunctiva is bright red with fresh blood and not especially chemotic the corneal nutrition is safe. If, however, the chemosis or lid swelling increases to a sufficient degree that pressure interferes with the conjunctival

circulation, then the cornea is in grave danger. Beware of the ophthalmia in which the conjunctiva suddenly becomes pale. Lay people think this is a good sign and nurses also must be instructed to the contrary. Within twenty-four hours one can pass from a clear bright cornea to sloughing of the entire cornea with subsequent loss of the intra-ocular contents. It is because of the rapid course of corneal destruction that babies' sore eyes require observation several times daily.

PROPHYLAXIS

There is no other disease in which prophylaxis is so brilliantly effective and so gratifying. It is of interest to note that Gibson of Manchester in 1807 advised "First, that the disease be removed from the mother during pregnancy if possible; second, that as much of the abnormal vaginal discharge as possible be removed at birth and, third, to pay at all events particular attention to the eyes of the child by washing them immediately after delivery with a solution calculated to remove the offending matter or to prevent its noxious action." However it was not until Crede, in 1881, introduced silver nitrate prophylaxis that real progress was made. Pasteur had laid the groundwork that allowed Crede's work rationale.

Prophylaxis today should include at best the antenatal treatment of infected mothers with possibly the use of antiseptic vaginal washes at the onset of labor. One should avoid opening the baby's eyes and as soon as the baby is born the external lids should be gently cleansed with 1 to 10,000 mercury bichloride or with plain water. The bath water is kept out of the baby's eyes and after the bath the lids are again cleansed. Avoid contaminating the baby after the bath. If the child is made to cry the lids are at this time easily inverted by gentle pressure upon the middle parts of the lids, the eyes are now opened for the first time. A drop of 2 per cent silver nitrate, freshly prepared or used from sealed waxed ampules, is instilled into the conjunctival sacs and after five or ten seconds the sacs are washed thoroughly with normal saline solution. In many areas today silver nitrate is not used because it frequently produces a slight conjunctivitis, but if the silver is properly washed out with normal saline solution this will seldom occur and statistics on millions of births still prove that silver nitrate is by far the most effective. If there is no time to wash the baby immediately after birth one may be content to wash the face and hands besides the eyelids and proceed with the silver nitrate treatment avoiding contamination later as well as possible.

TREATMENT

Treatment is designed to accomplish four purposes: (1) remove bacteria by mechanical washing, (2) increase the patient's resistance, (3) avoid or relieve excessive swelling of the lids or conjunctiva, and (4) destroy the bacteria. It is essen-

tial that the cornea be inspected; this usually requires the use of lid retractors if the swelling is severe. A heavy hairpin bent on its curved end to form a lid retractor makes an excellent substitute in an emergency. By placing the fingers on the lids above the bony margins of the orbit before making pressure or traction upon the lids to open the eye one can avoid pressure upon the cornea. This is extremely important because one never knows but that a corneal ulcer has developed and is about ready to rupture; marked pressure in opening the lids could rupture the cornea so forcibly that the intra-ocular contents would be lost.

One should never pry apart the swollen lids in ophthalmia without protecting his own and others' eyes. The lids form a water tight junction behind which pus may accumulate under pressure so that on prying the lids open a drop of pus may squirt forward with surprising force. The physician must always see that nurses on the case are protected from such accident with goggles.

The pus must be given free drainage. We try to keep the eye washed clear of pus. This may not be possible. Pus may be formed in a few minutes when indeed the eye literally pours pus. It is especially important to keep the trough beneath the chemotic conjunctiva overhanging the cornea free of pus; if this cannot be done Duke-Elder even advises not to hesitate to cut off the overhanging rim of conjunctiva with scissors.

Specially qualified nurses constantly in attendance are probably more important than any other one factor. Hence, societies for prevention of blindness make provision to pay for such care in indigent cases. Special nurses are necessary since the eyes require frequent washing and proper washing. All authorities agree on this point. One must be certain that nurses are properly trained and must actually show them how to invert the lids and wash out the secretion. An ordinary smooth tipped dropper with a large rubber B-D bulb attached makes an excellent irrigator. It should not be inserted between the lids lest it scratch the cornea. Nor should the nurse have stylish fingernails lest they do the same.

Any nonirritating solution can be used for irrigation. I prefer 2 per cent sodium baborate since it frees the mucus easily. Washing is repeated every fifteen minutes if there is any pus to wash away. If there is scanty secretion washing every thirty minutes suffices. If swelling is marked iced compresses are applied constantly. Every two to four hours a mild antiseptic is used. Neosilvol, 20 per cent, and metaphen 1 to 2,500 may be used alternately. Two per cent neoprontosil may be used in the eye but whether or not this is really of any value has not been determined and therefore it should not supplant the others. Silver nitrate, $\frac{1}{2}$ to 1 per cent or even 2 per cent, which formerly was used freely, is now reserved for cases in which the period of virulent secretion is protracted. The lids should be inverted so that the cornea is hidden from view

and the silver nitrate dropped or swabbed upon the conjunctiva. Silver nitrate is a superficial cauterant and we do not wish to cauterize the corneal epithelium even superficially since it is not readily repaired. Therefore the cornea must be protected from the silver nitrate. The depth of desquamation of the conjunctival epithelium following silver nitrate depends upon the strength of the silver nitrate used and upon how long it is allowed to act. It should be washed out with normal saline solution after a few seconds. In any case it should not be used more than once a day and it must not be used when the conjunctival circulation will not be sufficient to repair the cauterized epithelium. In addition, it should not be used before the period of blennorrhea, nor when there is pseudomembrane formation nor when there is marked brawny swelling.

Most authorities agree that next to irrigation the use of nonspecific protein therapy is most important. For this purpose boiled milk given intraglutely seems the most reliable and effective. On the first day 1 cc. is given. If a febrile reaction is not obtained in 24 hours, 2 cc. should be given. The injections should be repeated every third or fourth day for four doses. As much as 3 cc. can be given if the reaction permits. Any more than four injections seems to be useless. Usually the milk injections are followed by dramatic improvement.

Striking results with sulfanilamide and neoprontosil by mouth have been reported. This may be of special value in inclusion blennorrhea as well as in gonococcus infections. It is still too new to be evaluated and therefore should not be depended upon.

Treatment must be continued until smears and cultures are repeatedly negative. If treatment is stopped when the secretion stops about 10 per cent of the cases relapse. Virulent gonococci have been

found in the conjunctival sac twenty-eight days after all secretion has ceased (Gifford).

OPERATIVE TREATMENT

To relieve the pressure of the swollen lids upon the cornea, free canthotomy should be done. Scarification of the bulbar conjunctiva has been advised to relieve severe chemosis. As stated before, Duke-Elder advises removal of the chemotic conjunctiva overhanging the cornea. When there is corneal involvement Gifford advises complete covering of the cornea with conjunctiva tied with a purse string suture. This is done even at the height of bacterial infection and strangely enough is said to be well tolerated.

PROGNOSIS

If treatment is started reasonably early almost all the eyes are saved. If fully developed ophthalmia is present the prognosis depends upon the state of the cornea. If the cornea is clean and remains clean during the first twenty-four hours the chances are excellent that the eye will be saved. If the cornea is cloudy before treatment is started the chance of saving the sight is small. The earlier treatment is started the better the prognosis. In general, the prognosis of gonorrheal ophthalmia neonatorum is not as bad as the disease in the adult.

COMPLICATIONS

Local complications are all those complications of corneal ulcers with or without perforation, and their sequelae. They vary from faint corneal nebulae through adherent leukoma to panophthalmitis and phthisis bulbi. As with other virulent infections general complications from spread of infection are possible. These run the gamut of possibilities to be expected with virulent organisms from metastatic abscesses to septicemia and death.

Metropolitan Building.

LOSS OF EYESIGHT IN CHILDREN DUE TO REFRACTIVE ERRORS AND CROSSED EYES

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Every person appreciates the blessing of vision but few the blessing of binocular vision with its resultant depth perception. In this age, much of success and at times the very continuance of life is dependent upon this faculty being well developed. Every motor driver is faced time and again with the need of instantaneous and accurate judgment of speed and distance if he is not to endanger his own and other lives. The work of skilled artisans and the scientific professions is dependent on the use of instruments of such speed precision that an immensely greater fineness and flexibility of ocular use is needed. The vision must be more and more nearly perfect, and that means not only two eyes seeing equally clear but moving smoothly,

rapidly and without perceptible effort in parallelism over the field of vision, changing the convergence and accommodation for distance quickly and holding the eyes converged on the reading distance for prolonged times without tiring. We consider far too little the work given the eyes of children at the age when eyes are most plastic, the age of puberty with its rapid growth, glandular imbalance and all that contributes to elasticity of the sclera.

Pioneers in the field of scientific visual testing started their work less than a century ago. Snellen in 1862 published his "Optotypes" and Snellen and Landolt in 1874 published the chapter in the "Graeffe-Saemisch Handbuch" which mark the first expositions of the scientific theories underly-

ing optically correct methods for visual measurements and movements of the eyeballs. Almost simultaneously Donders, Jaeger and Javal investigated squint with the same accuracy and started what has today become known as orthoptics.

At birth an infant squeezes the lids in the presence of a bright light; within a few days often it will look at a bright object and within a few months recognize some objects. During the first year the eyes may wander from parallelism at times but are usually straight. The lapses usually come with teething or illnesses. Inheritance is of great importance. Children commonly show the same visual and fusion defects as a parent, often to approximately the same formula. Fusion is placed in three levels: (1) first degree or the ability to see out of both eyes at once even if only to fuse colors; (2) the ability to place the images together such as fusing an L and a superimposed F to make E; (3) the ability to see in stereopsis. Perfect vision is dependent upon two eyes that see normally, that are in line so that the image is focused on corresponding retinal points in each eye, that have the faculty of mentally fusing the images to give a picture with the perception of depth, and further have the ability to move through about a 60 degree arc holding the two eyes easily fixed upon the object of vision.

Simultaneously with fusion development occurs vision development. The macular region of the retina is richly endowed with nerve endings and it is here that definitive vision occurs. The image is focused on the macula by the compound refraction of cornea, lens and media and adjusted for sharpness by the ciliary muscle. At birth the eye is markedly far sighted which farsightedness steadily grows less during the next few years. For the first months the macular region of the retina pushes ahead in its development of perception in keen detail while the higher centers of the brain store up sufficient data that they can start interpretation. If during this time a physical or optical defect is sufficient to hinder the sharp focusing on the macula of one eye, that eye may fail to develop macular perception. A simple example is where sufficiently greater farsightedness or astigmatism occurs in one eye than the other that the image in that eye is never clear on the macula unless greater accommodation is used than needed in the other eye, or a lens fitted. The child learns to use the accommodative power of the weaker eye, the inherent desire for fusion is so weak that there is no internal urge to binocularism and thus the macular fibers lie dormant. After a few years examination reveals this eye is deficient in vision. This is termed amblyopia exanopsia. If this discovery is made soon enough and appropriate steps taken the vision may be recovered.

The usual method of approach in treating amblyopia is to restore vision by first correcting the optical defect that prevents the image from being sharply focused on the macular retina, then by

exercising the macular pathways until they are functioning and the mental storehouse for that eye has a stock in trade for interpretation. After sufficient vision is secured that there is something to "get hold of" monocularism must be broken down. This is often hard, but the best approach is through stereopsis because the joy of perception of distance once established is not easily relinquished.

The first objective, sharp macular focus, is reached by refracting the eye under a cycloplegic that completely relaxes the ciliary muscle; for example, atropine over a period of three days or longer in cases where strabismus is present. Lenses are fitted to very young children through retinoscopy. A full or practically full correction is ordered. Its accuracy is checked in six weeks and six months and thereafter at six to twelve month intervals.

If the child is old enough the second step is started immediately; namely, the development of the macula and macular pathway, while the eye is still under the influence of atropine. The first steps are to occlude the good eye, usually by a bandage. At first the child is lost and fights the bandage but gradually the vision returns in the amblyopic eye. The child is encouraged all this time to try to do things with a precision that is equal to the best vision he can summon. As soon as there is sufficient vision and the child is old enough to participate in little games with a pencil or to talk about pictures, the training to develop fusion is started using the stereoscopic principle in some one of a multitude of devices and machines available. A cheap stereoscope or even an old one out of the attic, a few smooth boards and a tool minded father are all that is necessary to make a very serviceable scope for a form of the "hand eye" training as recommended by Maddox. Strip cartoons are placed in front of one eye and blank paper in front of the other on which the child traces the image of the cartoon. This requires second degree fusion and is excellent to help in vision development. Third degree fusion exercises demand the effort of the child, the constant supervision of an interested intelligent adult and special cards which have depth manifestation. These are first seen in the easiest form and then in increasingly difficult problems, at the same time the breadth of the depth perception is increased by seeing how far back and forth on the slide of the stereoscope the holder can be moved and the sense of stereopsis maintained, also by separating and approximating the two halves of a "split" card while maintaining the illusion of depth. This exercise also improves the function of the coordination centers and the balance of the extra-ocular muscle movements. A number of intricate instruments are available for fusion and muscle training, some of them employing helpful additional features.

All patients' parents are encouraged to keep up contests of guessing distances while driving in the country and to encourage games that require use

of depth such as jackstraws. These methods are based on the eyes maintaining parallelism, but sometimes they do not stay straight. Let me say here that whether there is amblyopia or defective vision through refractive error, monocular convergence with amblyopia, alternating convergence or simple alternation of vision without vergence upset, the cause usually is found in the varying degree of and the interplay between the following factors: (1) visual acuity and its balance between the two eyes, (2) convergence and accommodation powers or a strain on their relationship, and (3) inherent strength of fusion faculty.

The convergence-accommodation relationship follows a firmly fixed rule and is the key to most crossed eyes. The normal, emmetropic eye is at rest at distances greater than twenty feet and the eyes are parallel. The eye at one meter uses one diopter of accommodation to focus the image and one meter angle of convergence to focus the two eyes inward to make the visual axis fall upon the same spot. At 33 cm., which is the approximate reading distance, there are three diopters and three meter angles in use. If the eye is hypermetropic sufficiently to use nine diopters accommodation to focus at 33 cm., the urge on the convergence will be to turn the eyes in to focus nine meter angles or at 11 cm. Here we have the urge to accommodate closer to relieve the strain on the convergence which is endeavoring to keep the eyes from converging on a plane closer than that on which the accommodation is set, but each time the accommodation moves closer the urge to converge is increased. What happens depends upon the strength of the convergence muscles, intensity of the desire for binocular vision and the equality of the refractive error of each eye. If the desire for binocularism is great the patient will probably refuse to use the eyes at the near point or if he must he will develop a habit of holding the reading at a closer point than the customary 33 cm. and have symptoms of strain. If fusion desire is weak the eyes will cross with the development of the alternation in use and the ability to focus either eye upon an object. If the vision is unequal the best eye will dominate and remain turned forward and the other cross. The eye that does not work fails to develop vision.

The cause in concomitant squint being refractive error, the first step is the same as in amblyopia. In fact the steps are all the same excepting we are working with patients younger where the amblyopia has not become fixed and that is the reason why lenses should be fitted at from 18 to 24 months. Do not think that children will lose spectacles or refuse to wear them. If properly fitted, the infant, with few exceptions, refuses to be without the glasses. Babies are far more intelligent than most will allow them credit for; they like to see clearly just as much as anyone and will certainly set up a protest when the instrument of that vision is removed. In young babies the relationship between

strain and squint often is dramatically demonstrated by the eyes returning to parallel as soon as the accommodation is completely suppressed by atropine. The prolonged use of atropine after the lenses are fitted is frequently of great help in order to break down a habit of accommodation spasm. Fortunately correcting the underlying visual fault in infancy allows breadth of vision and fusion to develop naturally. Later in life its breadth may be increased if necessary.

Inestimable harm has been done by advice that children will outgrow the squint. Some children do but often at the expense of allowing the eye from which the accommodation urge on the convergence was originating to become so amblyopic that there is no further accommodative effort. If the accommodative strain is about equal the eyes will become so fixed in muscle contractions that surgery is necessary to turn them sufficiently to parallelism that vision and fusion training can be started. It is true that stereoscopic training and visual building with the use of prisms to bring the vision parallel is successful but the time required is long and the effort so tiring that I prefer to advise operation where the child is in school or will be in another year. Peters states that, "as a rough rule as many years are needed to train back vision and parallelism as the trouble has existed." After operation the training for third degree fusion can progress much more rapidly.

There are several types of strabismus and visual defects that have not been touched upon. One is the divergent strabismus that develops later in myopic eyes. It is not frequent and the vision can be corrected as in all myopia while convergence training is started along with depth perception development.

Another type of divergence is encountered in visual defects with an anatomic basis. The cases of residual hyaloid remnants which have interfered with vision that I have seen, have in several instances had divergence which I attributed to an effort to see around the defect. In injuries that destroy the sight in the macular region the eye often turns out. Associated with malignant myopia there is loss of sight from chorioretinal degeneration but the correction of this type of visual loss must depend upon an understanding of the cause. These cases should all have the most careful examination for glandular imbalances, and focal infection, especially for tuberculosis protein sensitivity.

A squint or blindness suddenly developing late in life is nearly always a diagnostic symptom of some very grave disease and as such demands immediate explanation. These squints are of the paralytic type and knowledge of cranial centers and pathways of the muscle involved is of inestimable value in helping determine the cause. They are only remediable by treating the cause or, if fixed and old, may in appropriate instances be helped by surgery. Blindness or loss of part of the visual field has the same diagnostic importance.

CONGENITAL SYPHILIS AND ITS EFFECT UPON EYESIGHT

PHILIP S. LUEDDE, M.D.

ST. LOUIS

Congenital syphilis reaps an unbelievable havoc upon the eyes. It is a disease which could be entirely eradicated through complete cooperation of all prospective mothers and physicians by prenatal blood examinations and thorough antisypilitic treatment of pregnant women who are afflicted with syphilis. This procedure has been one of the objectives of all maternal and child welfare committees and societies.

Congenital syphilis frequently manifests itself ocularly at birth in the form of rhagades (analogous to those of Hutchinson at the angles of the mouth) at the angles of the lids. Also a form of blepharitis has been noted, characterized by small discrete ulcerations, and a papular eruption appearing shortly after birth. This condition is often accompanied by an absence or loss of the eyelashes.

Congenital syphilis also becomes evident as a chronic periostitis involving the orbit and is occasionally associated in this position with external ocular muscle palsies of various types.

The most vicious ocular manifestation of congenital syphilis is parenchymatous keratitis, known more commonly as interstitial keratitis. This non-suppurative inflammation of the cornea is the most common ocular affliction. Its onset is usually between the sixth and twentieth years, although cases may occur earlier or later in life. Females are more often afflicted than males (Fuchs). This disease may be divided into two main phases, that of invasion and that of regression.

The invasion phase has usually an insidious beginning, although, following some local trauma (a blow on the eye with a blunt object) or a debilitating illness (exanthemata), the onset may be abrupt and rather severe. The invasion may commence either peripherally at the limbus or centrally in the cornea with a deeply placed grayish infiltration of corneal stroma. These discrete lesions slowly increase in number and coalesce. The cornea loses its luster over these areas and, as increase in the infiltration occurs, vascularization of the cornea from adjacent deeply placed scleral vessels occurs with characteristic "brush-like" tufts of vessels appearing in the stroma of the cornea so that the cornea assumes a grayish red color. This stage of the disease is always accompanied by inflammation of the anterior uveal tract.

The appearance of the cornea at the acme of the invasion stage varies from a dense opacity which nearly completely obscures the iris to a localized marginal or central opacification relatively nebulous in character.

The phase of resorption commences with early, rather rapid clearing of the opacities and later there is a more slowly progressing diminution. It is this phase which is vitally important in the restoration

of vision. The course of interstitial keratitis is long, frequently increased by the successive involvement of the two eyes. The symptoms of pain, photophobia and lacrimation usually increase for about two months and then follows a protracted period of corneal clearing for from six to eighteen months. It is this latter phase which assumes so important a role to the patient since upon its progression frequently depends the degree of vision restored. Recurrence is seen, although rarely, even after thorough treatment.

The etiology can nearly always be determined by the presence of one or more of the classical signs of congenital syphilis; namely, Hutchinson's teeth, saddle nose, nerve deafness, fine cicatrices at the angles of mouth and lids, topi and enlarged, discrete, hard, cervical lymphatic glands. Wassermann tests are nearly always positive in children but not always in parents.

The prognosis in interstitial keratitis is usually good as regards the restoration of serviceable although sometimes imperfect vision. The duration of the disease, however, is usually quite protracted in spite of early and vigorous treatment.

Treatment must be divided into local (ocular) and general. The former consists of cycloplegia with atropine, relief of photophobia by protection against light and care of complications as they may arise. The general therapy consists of adequate and prolonged treatment with arsenicals and mercurials by intravenous and intramuscular injection and inunction. Mercuric chloride is a convenient and valuable form for administration to children. Careful attention to dietary and hygienic measures is essential in bringing about an early and satisfactory termination of the disease.

As mentioned previously, congenital syphilis does involve the anterior uveal tract, usually associated with interstitial keratitis, and results in posterior synechiae from iridocyclitis and in anterior choroiditis. These, fortunately, are rarely severe and do not account for a large percentage of the loss of vision resulting from this disease.

Optic atrophy occurs usually secondarily as the result of neuritic inflammation; from the primary type only in the very rare juvenile syphilis. The resulting visual losses are quite variable in the former, but usually quite complete in the latter.

The point most to be stressed is prophylaxis by complete examination of the pregnant woman and insistence upon serologic tests in all cases and, where tests are positive, early and prolonged arsenical and mercurial therapy in the prenatal period. In children in whom serologic tests reveal congenital syphilis, early and adequate antisypilitic treatment will do much to prevent painful and destructive ocular manifestations of the disease.

CAUSES AND PREVENTION OF BLINDNESS IN ADULTS

THE ROLE OF THE GENERAL PRACTITIONER

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The prevention of blindness in adults is essentially a medical rather than an ophthalmological problem. One needs only to inspect any carefully tabulated list of causes of blindness to appreciate this perhaps startling statement. Of course traumatism cannot be included in this category although frequently proper interim treatment of an injured eye by the general practitioner may tip the scales in favor of a successful result.

Let us examine a typical set of statistics, the tabulation of 11,852 cases of blindness in Pennsylvania.* This number represents probably one half the number of blind persons in the state at the time of publication of the statistics. Excluding all congenital anomalies, for which treatment is of little avail in any case, traumatism, all external infections (except gonorrheal conjunctivitis but excluding ophthalmia neonatorum) and all predominantly juvenile diseases we have a total of 8,779 cases remaining. If from this we subtract cases of ulcerative keratitis (194) on the assumption that all cases were due to external infection and all cases of senile cataract (2,666) there remain 5,919 cases of blindness, almost exactly half, due to general disease. It is questionable if senile cataract should be omitted since under this diagnosis were classified all cases with diabetes in which the cataracts developed after age 50 and since complete blindness with cataract depends on some retrolenticular disturbance.

Breaking down this figure of 5,919 cases due to general disease gives the following incidences: uveitis (all causes), 25.3 per cent; choroiditis, 8.2 per cent; chronic glaucoma, 24.8 per cent; acute glaucoma, 1.9 per cent; vascular diseases (including diabetic and nephritic retinitis, conditions of predominantly vascular origin), 10.6 per cent; optic atrophy, 20.3 per cent, and neuroretinitis, 5.0 per cent. This group makes up a total of 96.1 per cent of the 5,919 cases. If from this group glaucoma is excluded there is still 69.4 per cent of these cases (approximately 35 per cent of the total number) whose origin lies in some systemic condition with focal infection, vascular disease, syphilis and tuberculosis predominating.

In considering these figures it must be remembered that only in the minority of cases with vascular disease of the eye is sight diminished to a sufficient degree to make the patient eligible for pensioning.

Glaucoma of all types is as frequent as uveitis of all types as a cause of blindness. The importance

of differential diagnosis between uveitis and the acute and chronic inflammatory types of glaucoma should be obvious. It is often necessary that the practitioner of medicine treat an inflamed painful eye. If he recognizes that the general external appearances of acute glaucoma and acute iritis are similar, he will be on guard against the mistake (fortunately rare) of instilling atropine into a glaucomatous eye.

Dilatation of the pupil in patients over 40 years of age by atropine or even homatropine may precipitate an acute attack of glaucoma. It should be done only after the physician is satisfied that the optic disk is not excavated, that the intra-ocular tension is normal and that the anterior chamber is of normal depth. Chronic simple glaucoma, "the thief in the night," has as a rule only mild and comparatively vague prodromal symptoms. By the time it has progressed to the point of diminution of visual acuity it is already too late. Prompt recognition of the prodromal discomfort and blurring of vision, usually accompanied by slight pain or a "heavy" sensation and usually occurring on awakening, enables the patient to receive the advantages of immediate treatment.

Cataract is not a cause of blindness in the absence of retrolenticular complications or unless the patient is too feeble to withstand operative procedures. It is advisable to wait for a certain amount of "maturing" before operation, at least to the point of interference with a reasonably normal life, but it is not necessary to wait for complete opacification. Advice to wait until "blind" before having the lens removed (also infrequent now) is dangerous since the average cataract patient is in the glaucoma age range and may develop glaucoma at any time. Indeed, cataractous lenses by imbibition of fluid and consequent swelling may produce blockage of the filtration angle and thereby bring about an increase of intra-ocular tension.

The importance of watching for early optic nerve changes in syphilis cannot be too strongly emphasized. Here, as in glaucoma, the disease may progress to a dangerous point before visual acuity is noticeably diminished, particularly if the patient is not too intelligent. Sometimes a well marked neuroretinitis presents itself on routine ophthalmoscopic examination although there may be no symptoms pointing to it. Again, some of the therapeutic agents used in the treatment of syphilis, especially trypanarsamide, in certain patients produce serious changes in the optic nerve. More rarely one sees a comparatively mild optic nerve reaction possibly caused by hypersensitivity to trivalent arsenic preparations.

Recognition of the possible causal agents of cer-

*Cowan, A., and Sinclair, S. M.: Causes of Blindness in Pennsylvania, J. A. M. A. 107:757 (Sept. 5) 1936.

These figures are used because they were immediately available. Other statistics might differ in distribution of specific causes but in general the trend is similar.

tain eye conditions, notably iritis and uveitis, is of great help in searching for the probable factor (usually focal infection or syphilis) responsible for the production of iritis.

Knowledge of the ophthalmologic pictures in chronic diseases involving the vascular systems is of help in formulating the diagnosis and prognosis of these conditions. Nothing can be done about them by local measures and their treatment resolves itself into treatment of the underlying disease, which, of course, is carried out by the general

practitioner. A much more intelligent and satisfactory liaison between practitioner and ophthalmologist is possible when each knows something of the other's business and is to the advantage of the patient.

Recognition by the general practitioner of his part in the prevention of blindness, particularly in adults, will be as effective in the reduction of the incidence of blindness due to general disease as any effort of the ophthalmologist, perhaps more so.

900 Argyle Building.

INDUSTRIAL EYE INJURIES AND HAZARDS, THEIR PREVENTION AND TREATMENT

ROY E. MASON, M.D.

ST. LOUIS

I will confine my remarks to the diagnosis and treatment of the injuries that most frequently come within the province of the general practitioner. Probably no other accident that may befall a human being results in greater mental and economic suffering than one causing a loss of vision.

A large percentage of all industrial accidents to the eyes occurs to persons between the ages of 18 and 50 and a loss of vision at this time of life naturally is followed by a great loss in the earning power. At least 60 per cent of all industrial traumas to the eye consist of a foreign body in the eye and the majority of these patients usually will apply to the general physician for treatment. In this connection it might be well to remember that the degree of pain caused by a foreign body on the cornea or under the eyelid is not governed by the size of the foreign body but by its texture. The proper removal of a foreign body from the eye requires a certain amount of skill and the better this small operation is performed the less is the injury to the eye itself. First of all we must provide ourselves with a good light and focusing lens and preferably a binocular loupe. The best instrument for removing a foreign body is a small, but reasonably sharp, eye spud. No attempt should be made to remove a foreign body until a thorough anesthesia of the cornea is obtained and for general purposes nothing has been found better than 4 per cent cocaine. A good anesthesia is usually obtained with two or three drops of this solution. If the foreign body has been deeply imbedded in the cornea, it is usually wise to close the eye with a pad for at least a day following its removal. Holocaine ointment in the conjunctival sac will give great relief from pain for a few hours. If it is difficult to see the foreign body on the cornea, the instillation of 2 per cent fluorescein solution will often make the injury visible at once.

Most industrial injuries come within the province of the Workmen's Compensation Law and any loss of time or function is followed by compensation for

the same; therefore it is wise to make accurate notes describing the injury, the treatment prescribed together with a visual acuity reading of each eye at twenty feet on a Snellen chart.

Intra-ocular injuries are naturally of a more serious nature. Every patient with a penetrating wound of an eyeball should be hospitalized. Patients with intra-ocular injuries sometimes give indefinite and meager histories and therefore, whenever a patient gives a history of a foreign body striking an eye followed by a loss of vision and accompanied by a difference in the size of the two pupils, a roentgenogram should be taken. The removal of an intra-ocular foreign body naturally comes within the province of the eye specialist and will not be taken up at this time but often the diagnosis of an intra-ocular foreign body falls to the general practitioner and the early recognition of this condition is of prime importance in the proper handling of these distressing accidents.

Perhaps the next most frequent injury to the eye is corneal abrasion. These injuries are always accompanied by great pain and if there is no foreign body present the injury may be difficult to see. The simplest way to diagnose this injury is by the instillation of a 2 per cent solution of fluorescein which immediately stains the abraded area and makes it perfectly visible. An abrasion of the cornea should be treated with an anesthetic ointment such as holocaine and then closed with a bandage. The eye should be kept closed until the corneal abrasion no longer stains.

Chemical injuries of the eye are becoming increasingly more frequent. Those injuries resulting from the caustic alkalies are perhaps the most serious although those caused by the phenols and strong acids are equally destructive. The first and most important procedure after receiving a chemical injury is the copious irrigation of the eye and everted lids with water. This should be done as quickly as possible following the accident. If the burn is severe, involving the cornea, one will note

a white eschar. The cornea entirely loses its luster. Atropine, hot applications and complete rest are indicated in these cases.

The general practitioner is frequently consulted for the relief of a so-called flash burn following the use of an arc weld or acetylene weld. These patients usually complain of pain about three or four hours following the use of the weld. The lids feel rough and irritable and there is extreme photophobia. For the relief of this condition we have found nothing better than an ointment containing holocaine and epinephrine applied to the inside of the eyelids and ice packs. As a rule the ophthalmia does not last longer than from twelve to twenty-four hours.

In any injury to the eye, no matter what type, where pain and swelling of the lids persists or becomes increased, it is safe to assume the injury is not doing well. One of the first indications that the eye is healing is relief of pain and swelling of the lids.

All well organized industries today employ a safety engineer whose duty it is to employ every known safety device for the prevention of accidents and rigidly insist upon their use. The accident rate of ocular injuries in our best organized industries has been reduced more than 75 per cent and the safety goggle and eye shields on machines are responsible in a large measure for this result.

410 Frisco Building.

CONSERVATION OF EYESIGHT

CLYDE P. DYER, M.D.

ST. LOUIS

The importance of conservation of eyesight is not realized fully by the individual, the physician, the state or the community.

The Missouri State Medical Association has taken a forward step in recognizing this importance by appointing a Committee on Conservation of Eyesight. It is important that the members understand what this Committee is endeavoring to do and to cooperate with it.

Each physician throughout the state now has the responsibility of helping to inform the public of this important preventive medical education and care. The extent of the cooperation with and use of this Committee will be the physician's answer to the public and to the Missouri State Medical Association.

The Committee is in close contact with the National Society for the Prevention of Blindness, the Missouri Commission for the Blind and other similar groups that are interested in the education of the public in eyesight conservation problems such as protection against industrial injuries, better and stricter automobile drivers' licenses, state-wide anti-fireworks laws, education on vitamins as an important factor for good eyesight, ophthalmia neonatorum, trachoma, glaucoma, congenital syphilis, crossed eyes and the complete examination of the eyes in the fitting of glasses. Many other phases of conservation of eyesight could be mentioned but these show how extensive a field is covered by the Committee and the cooperating counties.

The general practitioner should inform himself more thoroughly so that he can advise his patients. He must be in a position to recommend to the superintendent of schools of his county what constitutes proper eye education for the students of the schools. The best place to sow the seeds of conservation of eyesight is among students in the high schools, colleges and universities. The ulti-

mate good of this type of education is not limited to the individuals reached but is spread to their parents and others. Education at this age will be most profitable later, both to the individual and to society.

The physician is in close touch with the various civic clubs and knows whom to contact so that the business men and leaders of the community are better informed as to the need for conservation of eyesight. The physician knows his town, county officials and his state representatives and should advise them of the importance and necessity of a state anti-fireworks law. The experience in St. Louis City and St. Louis County this year as compared with the last year shows how great a saving in life, limb and eyesight can be obtained. The promiscuous use of explosives is dangerous and does not make one any more of a patriot. As someone has aptly expressed it, "We should take the riot out of patriot." Other states have such laws. We should do no less to protect the innocent children who are usually the victims of someone's carelessness or neglect.

Proper lighting in the homes, schools, business houses and factories is most important, and the physician should do all he can to correct improper and faulty lighting whenever he notices it.

Eighty-seven per cent of all education is gained through sight and only 13 per cent is gained through the senses of hearing, feeling, taste and smell. Surely one cannot overstress so important and necessary a sense, dependent on good eyesight and its proper conservation.

One person of every four under the age of 20 years has defective eyesight and one person of every three under the age of 28 years and one of every two persons under 40 years. This defective eyesight is not merely the need of glasses but includes many inflammatory and noninflammatory

diseases or changes of the optic nerve, retina, choroid, vitreous, lens and other parts of the eye. Often some systemic disease is discovered in the complete eye examination by a skilled eye physician and the patient's family physician can then properly and successfully treat and care for this patient.

The Committee on Conservation of Eyesight is willing at all times to cooperate with the component county medical societies throughout the state for the better education of the public in all matters pertaining to eyesight.

The Committee appeals to all physicians to refrain from telling patients, "Have your eyes examined for glasses," or, "Go get a pair of glasses," but to specify a known eye physician in whom they have full confidence. This is a responsibility that the family physician should not neglect or shirk if he has the welfare of his patient at heart. The eye physician is willing to help with charity or low income group patients. He is willing to adjust his fee according to the ability of the patient to pay.

The good the Committee can do for humanity in Missouri depends a great deal upon the use physicians make of it. If the Committee is supported, it will grow and become a source of pride to the profession and to the state.

Humboldt Building.

FATIGUE HAS SEVERAL CAUSES

Not all fatigue is muscular. The cause may be laziness or boredom or emotion, in which case a little recreational activity outdoors in pleasant company will be a distinct relief.

Other causes of fatigue besides muscular exertion include nutritional deficiencies, tuberculosis and foci of infection in tonsils, sinus or teeth.—*Hygeia, The Health Magazine.*

MOUTH MAY REVEAL MANY DISEASES

An alert dentist not only discovers and treats dental diseases but is also trained to detect symptoms of many general diseases of the body which may reveal themselves through the mouth, Lester R. Cahn, New York, asserts in *Hygeia, The Health Magazine* for July.

In a large number of serious diseases, early symptoms may be seen in the mouth long before the patient is aware that he is afflicted.

PLACE OF SULFANILAMIDE IN PNEUMONIA TREATMENT NOT YET ESTABLISHED

The future specific treatment of pneumonia probably will be with a combination of sulfanilamide and pneumococcus serum, especially in those cases caused by types II and III pneumococci, Alvin E. Price, M.D., and Gordon B. Myers, M.D., Detroit, state in *The Journal of the American Medical Association* for March 18.

Although the results obtained from using the drug in the treatment of pneumonia are encouraging, the two men point out, the place of sulfanilamide in the treatment of the disease is not yet definitely established.

Their paper in *The Journal* is a preliminary report, based on 115 cases of pneumococcal pneumonia treated

with uniform doses of sulfanilamide, forty cases with Felton serum and ninety-four controls with no specific treatment.

The death rate was 15.7 per cent for the group of patients treated with sulfanilamide and 30.8 per cent for the controls. The death rate for fifty-seven patients with types I, II, V, VII and VIII pneumonia treated with sulfanilamide was 10.5 per cent, whereas it was 27.5 per cent for the forty patients with the same types of pneumonia treated with serum.

Of twenty-one patients with pneumococci in the blood stream treated with sulfanilamide seven died, of twelve treated with serum six died and of fifteen controls thirteen died.

Some adverse reactions due to sulfanilamide treatment occurred. In 5.2 per cent of the patients treated with sulfanilamide a severe anemia developed and in an additional 18.2 per cent moderate secondary anemia, influenced by the infection, developed.

PARASITE WHICH CAUSES DYSENTERY FOUND WHEREVER MAN EXISTS

Wherever man lives the intestinal parasite, *Endamoeba histolytica*, is found, Frank H. Connell, Ph.D., and Harry T. French, M.D., Hanover, N. H., maintain in *The Journal of the American Medical Association* for August 19. This ameba, a minute one-celled animal organism that causes dysentery in man, is not a respecter of race, color, creed, age or social position.

From 5 to 10 per cent of the population harbors the *Endamoeba histolytica*, Colonel Charles F. Craig, M.D., San Antonio, Texas, has estimated on the basis of surveys determining the incidence of dysentery. Because of this, Drs. Connell and French contend that: "It is important that men of science realize the seriousness of such infestation and that there is a definite need for an accurate estimation of the local incidence of this condition."

The authors examined 1,351 students at Dartmouth during 1934 and 1936. Twenty-four were found positive for *Endamoeba histolytica*. In 1935, of forty-five members of a class studying the life and habits of parasites, ten were found positive for one or more species of amebas and three of these were infected with *Endamoeba histolytica*.

In 1937 in a class of 684 men five positive specimens were found, and in 1938 five men in a class of 670 were shown to be positive for *Endamoeba histolytica*.

The investigators state: "Even though we do not believe that our examinations revealed more than half the infections actually present, they did at least point out again what everyone seems prone to forget—that no part of the country is free from amebiasis. With the students harboring the ameba coming from widely separated points, no one can afford to ignore the possibility that patients with gastrointestinal symptoms might have amebiasis. In the temperate parts of our country at least, the probability of acquiring an amebic infection depends more on how one lives than on where one lives."

"With nearly all workers in this field agreed that no one can carry *Endamoeba histolytica* without harm, we are impressed by the casual way in which many physicians refer to carriers of amebas as 'just cyst passers.' The carrier state is dangerous not only to society but to the individual."

"Only eight of the thirty-seven students found infected had ever felt bad enough to seek medical attention. While most of the other twenty-nine students readily admitted to one or more symptoms suggestive of the carrier state, it is significant that not one of these men thought he had anything really wrong with him."

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SEPTEMBER, 1939

EDITORIALS

CONSERVATION OF EYESIGHT: TOPIC OF THE MONTH

Continuing the plan of the Postgraduate Correlating Committee to present symposia in THE JOURNAL on specific diseases or public health problems, a symposium on "Conservation of Eyesight" appears in this issue. Symposia will appear each month during the winter and spring months beginning with the November issue. Announcement of the subjects will be made previous to publication and it is suggested that component societies plan one meeting each month on the topic of the month.

TYPHOID FEVER

Typhoid fever is one of the most common continued fevers in temperate climates. Its incidence has been said to be an index of the "sanitary intelligence" of a community. In this regard we cannot be too proud of Missouri for the disease is highly endemic in Missouri. Sporadic cases are brought to the St. Louis Isolation Hospital throughout the winter months and each Decoration Day ushers in an epidemic which continues through spring, summer and fall following the irresistible urge of vacationists to "go to the country."

The disease is rarely contracted in the larger cities of the state, where milk and water supplies are amply protected. Typhoid carriers are probably largely responsible for pollution of food and water in the country. This has been emphasized recently in St. Louis by the illness of almost an entire family, proven to be due to the consumption of raw milk handled by a carrier.

When a milk supply is incriminated as the source of typhoid infection, it is useful to know that cattle themselves are not carriers and that the milk has been contaminated in the milking or distributing process. Infected water may have been used to wash the udders of cows or to cleanse receptacles for the milk. Frequently it is found that the dairyman or some member of his family is a typhoid carrier. Water supplies are, of course, polluted by urine or feces of active cases or carriers, either

directly or indirectly. In rural communities, the physician may prevent many new infections by carefully investigating the etiology of any typhoid that comes to his attention. Frequently the source is not difficult to determine.

Osler's diagnostic triad of protracted fever, palpable spleen and rose spots, together with the characteristic history of onset and the usual leukopenia, makes the clinical diagnosis easy in most instances. The so-called "textbook" picture is seen frequently in adults. In infants and young children, however, the disease often is atypical and mild so that clinical differentiation from one of the diarrheas is difficult. In both adult and child, there will be instances where nothing but a prolonged, unexplained fever, will make the physician rely on laboratory findings for differential diagnosis.

Actually, the absolute diagnosis is made only by isolating the typhoid bacillus from the patient, and since a positive blood culture can be obtained in from 75 to 90 per cent of patients in the first week of the disease, the diagnosis can be made earlier by this than by any other method. During the second and third weeks, the organisms may frequently be recovered from the stool, and may be found in the urine in from 25 to 30 per cent of the cases examined during the third week.

The agglutination reaction is reliable as an added diagnostic measure if it is interpreted properly. Since the reaction may persist in a fairly high titer for many years after recovery from typhoid fever, obviously it will not always indicate an active infection. Vaccination will also produce agglutinins that may later be wrongly interpreted if a single test is relied upon. If one bears in mind that a single positive at a titer of 1:80, 1:160 or even 1:320 is not by itself diagnostic of clinical typhoid, few errors will be made. If the titer is found to rise definitely during the febrile state, or even after defervescence, typhoid may then be diagnosed with a fair degree of assurance.

With early diagnosis and proper therapy, the outlook for the average patient is good. Overwhelming toxemia is the most common cause of death, being responsible for the greater portion of the 10 per cent mortality rate. Involvement of the nervous system is a bad prognostic sign and the patient with delirium or coma usually has a close fight for life. These extremely toxic patients require all the supportive measures we have such as frequent cool sponge baths to reduce the fever, adequate fluid intake given subcutaneously or by naso-gastric tube and frequent small blood transfusions.

The typhoid patient rarely dies of intestinal hemorrhage. When bleeding occurs, food by mouth should be discontinued for twenty-four hours after the hemorrhage has ceased. Small frequent feedings may then be started and a full typhoid diet is finally resumed in about three days. During this period of fasting, water may be supplied by mouth

and subcutaneously. Blood transfusion is not indicated during the stage of active bleeding unless the blood loss becomes so severe as to endanger life. Usually several small transfusions, not to exceed 250 cc. each, will restore the blood count to normal without inciting further hemorrhage.

Perforation of a typhoid ulcer is the most serious complication and means certain death if laparotomy is not done early. Approximately one third of these patients will recover if the opening is closed within the first twelve or eighteen hours.

The diagnosis of perforation is not easy and rests mainly on careful analysis of any complaint of sudden abdominal pain. The white blood count and the differential count are frequently not helpful, but an elevation of the total count over 10,000 should be of some value. The disappearance or decrease in extent of normal liver dullness will suggest free air about the liver, but this sign is not of absolute value if the abdomen is greatly distended. The demonstration of free air beneath the right leaf of the diaphragm by roentgenogram is conclusive proof that perforation has taken place. On the other hand, failure to demonstrate free air in the peritoneal cavity is not proof that perforation has not occurred. If a diagnosis of perforation is at all doubtful, exploration should be done. These patients seem to stand surgical intervention well.

In the treatment of uncomplicated typhoid fever nothing is more vital than good nursing care. The high caloric diet prescribed must actually be gotten into the patient and large amounts of water must be given between feedings. The mouth should be thoroughly cleansed with a mild antiseptic after each feeding because these patients are prone to develop degenerative lesions in the mouth. Sponge baths are given for a fever of 104 F. using water at 60 F. followed by an alcohol rub. An enema is given routinely each morning for relief of, or prevention of, distention and constipation. Enemata are not given to a patient who is suffering a hemorrhage.

There is little place for drug therapy in typhoid fever. Antipyretics tend to confuse the clinical course of the disease and should not be used. Cool sponges, alcohol rubs or ice bags to head and axillae are effective in reducing an excessively high fever. For the distressing cough that many of these patients have, a sedative cough mixture may be employed; otherwise opiates are contraindicated because of the danger of masking symptoms of perforation. Pituirrin, given for distention, may cause perforation and should not be used. Mineral oil is permissible if the patient is constipated.

The typhoid patient is always a potential bleeder and if intravenous fluid seems necessary at any time it should be given in amounts not to exceed 250 cc. Usually adequate fluids can be given by hypodermoclysis or gastric tube. Small repeated blood transfusions seem to be especially beneficial in supporting these patients. Almost all typhoid

patients develop a moderately severe reduction in red cells, the count frequently going as low as 3,000,000 if transfusions are not given.

Adequate diet and fluid intake are probably the most important principles of therapy. As long as the patient is febrile, the food given should be liquid or soft and highly nourishing. Such foods as soft eggs, milk, buttermilk, creamed soups, egg-nog, ice cream, custard or junket, oatmeal gruel and lemon albumin are well tolerated and should be given approximately every two hours throughout the day and night. It will not be difficult to reach or exceed a 3,000 calory intake on such a regime.

When the temperature has been normal for seven days, an increase in diet is permitted. After fourteen days the diet should be fairly liberal and gradually increasing exercise permitted.

The patient should have three negative stool and urine cultures before discharge, to determine that he does not persist as a carrier.

MALCOLM A. BLISS PSYCHOPATHIC INSTITUTE

With the opening of the Malcolm A. Bliss Psychopathic Institute, the City of St. Louis will set forth on a new era in the care of the mentally ill. Supplanting the old observation ward of the City Hospital the new institution, provided with every modern facility for diagnosis and research in mental disease, will serve as a clearing house for psychiatric problems of persons unable to afford private care. Although originally planned as a separate institution the hospital will now function as a department of the City Hospital.

The structure costing one and a half million dollars is a six story building of red brick with stone trimming, the general arrangement being that of the so-called "butterfly" design. The architecture of Georgian style harmonizes with that of the City Hospital. The site on which the building has been erected is a two and one half acre tract immediately north of the City Hospital, acquired by the city at a cost of \$109,800.

On the basement level are storage rooms, maintenance shops and operating equipment. From this level two tunnels connect with the City Hospital, one to serve as a passenger tunnel, the other for service traffic.

The ground floor is occupied largely by hydrotherapy, physiotherapy and occupational therapy units. A portion of this floor is to be allotted to a research clinical laboratory.

On the first floor are the administrative offices, offices of staff physicians, out-patient clinics for both adults and children, office and class rooms for the department of psychiatric nursing, offices of a department of social service, a record room, staff library and a lecture hall with a seating of 120.

The second and third floors will ultimately be assigned to white patients and the fourth floor to

Negro patients. The total bed capacity of these three floors is 190 of which 126 will be for white adults, 16 for white children, 30 for Negro adults and 18 for Negro children.

On the fifth floor is located an operating room suite for such general and neurological surgery as may be necessary for patients on the psychiatric service. Also on the fifth floor are two large recreation rooms intended ultimately for white patients. Resident quarters for the staff are also on this floor.

On each of the patient halls are doctor's offices and rooms for medical and psychiatric examinations and for consultations and treatments. On the second, third and fourth floors are cafeterias for patients as well as provision for tray service for the wards. Sun decks are provided at the ends of the wings of the two upper floors.

On the assumption that many patients may be spared hospitalization by early diagnosis and treatment two entire wings of the first floor have been set aside for an out-patient clinic, one for adults, the other for children. It is expected that much research in preventive psychiatry will be carried on in the clinic. The problems of personality adjustment among children will receive particular attention. Both in the clinic and in the hospital separate quarters and special equipment have been provided for the study and care of children. One entire wing of the clinic division is to be devoted to child guidance work. The services of the department of both hydrotherapy and occupational therapy will be available to the out-patient clinic. Although patients will be admitted to the hospital through the receiving ward, as at present, it is planned also to refer patients from the clinic directly to the wards for hospitalization. A large and active service is anticipated in the clinic both among children and adults.

Because of extensive reconstruction of certain buildings of the City Hospital and the necessity for evacuation of these buildings, more than two thirds of the new hospital will, for the next two years, be occupied by non-psychiatric services. During that time the psychiatric service will occupy but three divisions, one on the third floor and two on the fourth floor. Final plans for personnel therefore have not been determined.

For the present the medical staff is to consist of a resident and two assistants immediately under the supervision of the clinical director of the City Hospital. Interns from the City Hospital will be assigned on a rotating service. The visiting and consulting staffs who will direct the treatment of patients will be composed of members of the teaching staff of the psychiatric departments of the medical schools of St. Louis and Washington universities. Consultation in other specialties will be provided by the present visiting staff of the City Hospital and a mutual consulting service between the departments will become available.

The nursing staff will consist of an assistant superintendent of nurses responsible to the superintendent of nurses of the City Hospital. Each division will be in charge of a nurse supervisor and on each hall will be two general duty nurses. Two attendants will also be assigned to a hall. There will be a nurse director of hydrotherapy with attendants administering treatments. There will be a chief psychiatric social worker with one or more assistants serving both the hospital and the clinic.

Because of the individualization of care and treatment and the high ratio of nurses and attendants to patients the average operative cost will probably be much in excess of \$5 per patient per day, a total of about \$350,000 per year. For this reason and because of the small capacity the stay of patients will be limited probably to less than three weeks, after which continued therapy if necessary will be carried on in the City Sanitarium.

No great criticism can be offered at this time of the building proper. A few apparent suicide hazards and escape possibilities are being corrected. Steel windows have been installed throughout which apparently give the maximum in detention but which may present certain difficulties from within. The present arrangement for administration as a department of the City Hospital rather than a separate institution is the result of much consideration. Such an arrangement has proven satisfactory elsewhere. Because of the high per capita cost the stay of patients should be reduced to a minimum not to exceed three weeks and in many cases preferably less. It is possible the optimism felt in regard to anticipated results of research and preventive therapy may cause the definite need for long continued treatment in a large proportion of cases to be minimized.

The new hospital will stand as a most fitting memorial to the late Dr. Malcolm A. Bliss, for many years outstanding in psychiatric work in the State of Missouri. During the greater part of his medical life Dr. Bliss gave unceasingly of his time and effort in the interest of the mentally afflicted throughout the state. It was his constant endeavor to bring about improvement in the institutional care of the mentally ill. At the time of his death Dr. Bliss was the medical member of the Eleemosynary Board of the Missouri State Hospitals. He held the position of consultant to the staffs of the City Sanitarium, the Training School and the City Hospital. Dr. Bliss was one of the foremost advocates of the Institution which now commemorates his name.

NEWS NOTES

Dr. Ira H. Lockwood, Kansas City, was a guest speaker at a joint meeting of the Mid-Summer Radiological Conference and the Medical Society

of the City and County of Denver, in Denver, Colorado, July 28.

Discontinuance of Missouri Cancer Hospital No. 2, St. Joseph, was authorized by the State Cancer Commission at a meeting July 31 because of lack of funds. The hospital will close about September 15. Since the hospital was established in May 1938 it has served 229 indigent patients from sixteen counties in Northwest Missouri. Pending completion of the Ellis Fischel Cancer Hospital at Columbia, indigent cancer patients will be cared for at the hospital at Fulton.

The eleventh annual inactive status training course for medical department reservists of the Army and Navy will be held at the Mayo Foundation, Rochester, Minnesota, October 8 to 22, 1939. The general plan of former years will be followed. Special work in clinics and hospitals will be offered during the morning hours for those asking special assignments. Presentations of selected subjects in military medicine are scheduled for the morning, afternoon and evening hours. All medical department reservists are eligible for enrollment. Approved applicants will be enrolled upon the recommendation of the Surgeon of the Seventh Corps Area, Omaha, Nebraska, or the Surgeon of the Ninth Naval District, to whom applications should be directed.

Ceremonies for the laying of the corner stone of the new Missouri Trachoma Hospital at Rolla were held July 29. Dr. M. B. Clopton, St. Louis, President of the State Board of Health, was master of ceremonies. The Rolla Chamber of Commerce was host at a luncheon in honor of Gov. and Mrs. Lloyd C. Stark, the State Board of Health and the Grand Master of Masons. The laying of the corner stone was conducted by Mr. Karl M. Vetsburg, St. Louis, Acting Grand Master, A. F. & A. M., assisted by the Rolla Lodge. Addresses were delivered by Dr. Arthur T. McCormack, Louisville, Commissioner of Health of Kentucky, and Gov. Lloyd C. Stark. Dr. Eldon C. Bohrer, West Plains, represented the Missouri State Medical Association at the ceremony. The hospital is located west of Rolla on a five acre tract, the hospital occupying a knoll overlooking Highway 66. The building is T shaped, 192 by 109 feet. The hospital will have a capacity of seventy beds and will have laboratories, equipment for visual training, recreation and assembly room. The building is being erected at a cost of \$136,000.

The American Congress on Obstetrics and Gynecology, to be held in Cleveland, September 11 to 15, is sponsored by the American Committee on Maternal Welfare. The Committee is composed of member organizations, with a representative from each

forming the board. These member organizations include the various national and sectional obstetrical and gynecological associations, hospital associations, public health and nursing organizations. The committee describes the purpose of the Congress "To present a program of our present day medical, nursing and health problems from a scientific, practical, educational and economic viewpoint as far as they relate to human reproduction and maternal and neonatal care." Sessions and round table discussion for each professional group will be held each morning and in the afternoons papers of general interest to all members will be given. Evening sessions will be open to the general public. A \$5 fee includes registration at the Congress and membership in the American Committee on Maternal Welfare. Application blanks and further information may be secured from the American Congress on Obstetrics and Gynecology, 650 Rush Street, Chicago. Dr. Buford G. Hamilton, Kansas City, is secretary of the membership committee of the Congress, and Dr. Ralph R. Wilson, Kansas City, is chairman of the Missouri membership committee.

The Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held in Kansas City on October 2, 3, 4 and 5. Guest speakers who will appear on the program in addition to Kansas City members include Dr. William Edward Chamberlain, Philadelphia; Dr. George M. Curtis, Columbus; Dr. Temple S. Fay, Philadelphia; Dr. Russell L. Haden, Cleveland; Dr. Robert Inkerman Harris, Toronto, Canada; Dr. Chevalier L. Jackson, Philadelphia; Dr. Elliott P. Joslin, Boston; Dr. Frank H. Lahey, Boston; Dr. William H. Luedde, St. Louis; Dr. John L. McKelvey, Minneapolis; Dr. A. Graeme Mitchell, Cincinnati; Dr. Max Minor Peet, Ann Arbor, Michigan; Dr. Curtrice Rosser, Dallas; Dr. James P. Simonds, Chicago; Dr. Rock Sleyster, Wauwatosa, Wisconsin; Dr. Howard B. Sprague, Boston, and Dr. Gilbert J. Thomas, Minneapolis.

ORGANIZATION ACTIVITIES

FEDERAL COURT HOLDS GOVERNMENT INDICTMENT AGAINST AMERICAN MEDICAL ASSOCIATION INVALID

Justice James M. Proctor, upholding a defense demurrer to indictments, ruled on July 26 that the American Medical Association and its fellow defendants were not engaged in a trade as defined by the antimonopoly statutes. Counsel for the physicians had contended their activities could not be governed by the Antitrust Law, that they were engaged in a "learned profession" rather than a trade. On December 20, 1938, a District of Colum-

bia Grand Jury, acting on evidence presented by the Department of Justice, indicted the American Medical Association, the Medical Society of the District of Columbia, the Washington Academy of Surgery, the Harris County (Texas) Medical Society and twenty-one individual physicians for violation of the Sherman Antitrust Law. These organizations and individuals, the indictment read, were "engaged in a continuing combination in conspiracy in restraint" of trade in hampering the activities of Group Health Association, Inc., for the District of Columbia, an organization established in 1937 to hire physicians and nurses and provide hospital care on a cooperative basis to government employees. Defense attorneys had contended that all their clients' activities were directed solely at the maintenance of the ethics and standards of the profession.

The Department of Justice has appealed from the ruling and, according to press releases, may appeal the case directly to the Supreme Court.

The *Journal of the American Medical Association* in its issue of August 5 carried an editorial which, after pointing out that the complete text of the opinion of Justice James M. Proctor together with transcripts of a number of newspaper editorials and a press release from the Department of Justice were carried elsewhere in the *Journal*, commented as follows:

After indicating the nature of the indictment and the five forms of conspiracy that were charged, Justice Proctor listed the chief contentions of the demurrer. It is his opinion that medical practice is not a trade within the meaning of section 3 of the Sherman act. Particularly interesting in Justice Proctor's opinion is his analysis of the indictment. Thus he said:

"The defendants have raised objections to the sufficiency of the indictment as a pleading. These go mainly to the claim that many of the allegations dealing with essential and material features of the charge are vague, indefinite and uncertain. The objections are far too numerous to deal with separately. There is merit to many of them. The indictment is afflicted with vague and uncertain statements. In some instances material facts are altogether lacking."

Moreover, he said in relation to that part of the indictment which contained the charges against those indicted:

"The inducement, as well as the charging part, setting forth the plan and purpose and acts done to effectuate the conspiracy, abound in uncertain statements. Inference, opinion and conjecture are also freely indulged. This is especially so in the inducement, much of which seems unnecessary to a statement of the charge. It is questionable whether some of it would be deemed relevant and competent in proof of the offense. Every indictment should be confined to a clear and dispassionate statement of essential fact. Thus an accused can better know the exact offense with which he is charged and will not be confused in making his defense. Ordinarily improper matter in the indictment unnecessary to support the charges will not vitiate the indictment. It will be treated as surplusage and disregarded. But I doubt if such treatment would suffice to relieve these defendants of the prejudice likely to arise by an indictment which snacks so much of a highly colored, argumentative discourse against them. It must be remembered that when a case is finally sub-

mitted to a jury for their secret deliberations the indictment goes with them."

In its press release, the Department of justice indicates that it will seek a reversal of the decision handed down by Mr. Justice Proctor. It makes the statement that the release is issued not for the purpose of commenting on the opinion but for the reason that it is important to inform physicians generally that, until the Supreme Court has acted, the government policy toward boycotts in the medical profession is unchanged. The Department of Justice says further that it will use every effort to get a final decision from the Supreme Court at the earliest possible moment and that it may consider the possibility of calling another grand jury to consider another indictment in a different technical form. Finally the Department of Justice states that announcement of the exact steps which will be taken by the government will be made within the next ten days.

In response to this pronouncement of the Department of Justice, Mr. Seth W. Richardson, one of the attorneys representing the American Medical Association, gave the following interview:

"The warning issued by the Anti-Trust Division [of the Justice Department] to the medical profession generally, following the filing of the decision of the District Court on demurrer, was both impertinent and unnecessary."

"It was impertinent because, as the division should know, the government has no jurisdiction whatever over the medical profession, save in the District of Columbia, and medical men elsewhere need pay no attention to the threats of the Anti-Trust Division."

"The 'warning' was unnecessary because the members of the medical profession did not, do not and will not violate any of the anti-trust or other statutes in the pursuit of their calling."

"Finally, with reference to the statement of the division that the present decision is not a controlling precedent and that new grand jury proceedings may follow, it is sufficient to reply that until the present ruling is reversed counsel for the defendants believe that it stands as an effective bar to any similar abortive attempts on the part of the division to make further legal 'experiments' upon the doctors in the District of Columbia."

The conclusion seems inescapable that the Department of Justice has embarked on a course of prosecution if not persecution of the medical profession in this country with a view to forcing its contentions as to what should be the nature of medical practice in the United States. Failing to obtain a consent decree, it proceeded to secure an indictment. Attorneys for the American Medical Association obeying the mandate from its Board of Trustees, sought to obtain a quashing of the indictment by the filing of a demurrer. Now Justice Proctor has declared in no uncertain terms that the demurrer is sustained and has indicated that much of the language of the indictment is "highly colored, argumentative discourse." Not satisfied with this decision, the Department of Justice proposes to continue to seek to undermine the confidence of the people in the medical profession. The question may well be asked as to whether or not this is justice or persecution. The members of the House of Delegates of the American Medical Association have authorized the Board of Trustees and the officers to utilize to the utmost the resources of the Association in combating this attack by the Department of Justice. The opinion of Justice Proctor lends encouragement and is an inspiration to continuous effort in behalf of a free profession. The medical profession of this country will not be coerced, threatened, abused or otherwise maltreated, and it will fight to the finish when its high traditions demand a righteous resistance.

CONGRESS ADJOURNS WITHOUT ACTING ON WAGNER HEALTH BILL

The Seventy-Sixth Congress adjourned sine die August 5 without acting on the Wagner Health Bill, S. 1620. The *Journal of the American Medical Association* commented editorially in the issue of August 12 as follows:

The Senate Committee on Education and Labor, however, submitted a preliminary report August 4 and announced its intention to submit a definite report soon after the next session of Congress convenes. The subcommittee which has the bill under its immediate consideration plans to report an amended bill. The committee expresses the opinion that federal legislation along the general lines of the Wagner Health Bill is necessary to strengthen the health services of the nation and to make provision for progressive and effective improvement of health conditions in all parts of the country and among all groups of people. The committee was not convinced that the enactment of the bill would bring about revolutionary or dangerous changes in the established methods of medical service.

Congress passed in the last hours of the session just ended an act to amend the Social Security Act, and for other purposes, H. R. 6635, which covers primarily changes in the economic provisions of the act. In the Senate, certain amendments were added, later accepted by the House, largely increasing the amounts authorized to be appropriated for grants to states for maternal and child welfare, under the supervision and control of the Children's Bureau, and for public health work under the supervision and control of the Public Health Service. An amendment adopted by the Senate, proposing the establishment of an advisory council on disability insurance by the Committee on Finance of the Senate and the Committee on Ways and Means of the House of Representatives, in cooperation with the Social Security Board, was eliminated in conference.

On August 4, Senator Lodge of Massachusetts introduced a bill to provide health insurance to certain workers in severe economic distress, S. 2963. The bill proposes to provide certain limited medical and hospital services by physicians and hospitals chosen by the beneficiaries, but its benefits are to be limited to unemployed persons in need of medical and hospital services who during their periods of employment paid not less than certain stated amounts as taxes under the provisions of the Social Security Act. The bill was referred to the Senate Committee on Finance. Obviously it cannot be called up for consideration until Congress again convenes.

OBITUARY

PHILIP HOFFMANN, M.D.

On Friday, April 21, 1939, Dr. Philip Hoffmann, St. Louis, died suddenly of heart disease, aged 69 years.

He was graduated from the Missouri Medical College in 1892. He had been practicing in St. Louis for forty-seven years. Dr. Hoffmann early became interested in orthopedic surgery and devoted practically all of his medical career to that branch of medicine. He was a successful practitioner and an eminent teacher. During his life he held many teaching positions and hospital appointments. He was instructor in orthopedic surgery in the Missouri Medical College from 1893 to 1900 and was lecturer in orthopedic surgery at Washington University from 1900 to 1910. At the time of his death he was professor emeritus of orthopedic surgery at St. Louis University School of Medicine. He was also on

the staff of Bethesda Hospital, The Jewish Hospital and the St. Mary's group of hospitals, and on the advisory staff of St. Mary's Infirmary.

In June, 1938, Dr. Hoffmann resigned as professor of orthopedic surgery and chief of the department because of poor health. However, he took an active interest in the department, rarely missed a clinic day and made ward rounds once a week. His advice and friendly counsel were of great value. Dr. Hoffmann died, as he wanted to do, in harness. At the time of his death he was attending the annual meeting of the Missouri Society for Crippled Children, of which he was an executive committee member.

Dr. Hoffmann was a wise and careful practitioner, a profound student and a brilliant teacher. His contributions to orthopedic literature have been many and valuable. He was one of the older members of the American Orthopedic Association and up to the last few years a regular attendant at the meetings. He had a wide culture and was interested in art, literature and music.

All who knew Dr. Hoffmann, all who had the privilege of working with him, respected him for his wise counsel and his ever friendly help.

Dr. Hoffmann was one of the oldest as well as one of the best-loved surgeons in St. Louis and his spirit, which he evinced as a teacher, in clinic as well as classroom, will live for years in the hearts of friends and associates. Father Schwitalla said, "If he could have chosen the hour, the very second, in fact, for his going, it would have been the moment that he passed away, attending a conference for the welfare of the crippled children to whom he had devoted his life."—A. O., in the *Weekly Bulletin of the St. Louis Medical Society*.

ROCHE W. HOGEBOOM, M.D.

Dr. Roche W. Hogeboom, Springfield, died at his home on May 1, 1939, after an illness of several months. He had not practiced since December 1938. He was born at Oskaloosa, Kansas, November 9, 1875, son of George Washington Hogeboom, Kansas pioneer surgeon before the Civil War.

He attended grade and high school at Topeka, Kansas, attended Kansas University one year and was graduated from Rush Medical School, Chicago, in 1897. He spent sixteen months as surgeon with the Mt. Carmel Coal Company at Toluca, Illinois, and then went to Springfield as a Frisco Railway surgeon in 1900. He spent several years in the Frisco Hospital, St. Louis, then returned to Springfield and was head of the Frisco Hospital there until 1919 when he entered private practice.

He kept up with the newest achievements of surgical practice by constant professional reading and annual attendance at clinics throughout the country.

Dr. Hogeboom was a Mason, a member of the Chamber of Commerce and an ardent sportsman.

He was highly esteemed by his colleagues. One of them said of him, "He stood for the best in life and in medicine and he leaves to his boys a very delightful heritage." His older son is studying medicine.

He was extremely conservative, quiet and usually reticent but both social and professional friends who came to know him well found in him a tolerant nature and a character of great charm.

He is survived by his widow, Mrs. Cornelia Hall Hogeboom, two sons, two brothers, a sister and a nephew, Dr. George Hogeboom, Springfield, who was associated with him for nearly ten years prior to opening a separate office in 1932.

Friends of Dr. Hogeboom have created a fund to establish a memorial to him at St. John's Hospital, Springfield.

DANIEL L. YANCEY, M.D., Secretary.

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

Dent County Medical Society, January 25, 1939.

Stoddard County Medical Society, January 30, 1939.

Howard County Medical Society, February 15, 1939.

Macon County Medical Society, February 22, 1939.

Johnson County Medical Society, February 25, 1939.

Morgan County Medical Society, March 21, 1939.

Webster County Medical Society, March 28, 1939.

Carter-Shannon County Medical Society, March 30, 1939.

Holt County Medical Society, March 31, 1939.

Bates County Medical Society, April 1, 1939.

Lincoln County Medical Society, April 5, 1939.

Miller County Medical Society, April 5, 1939.

Moniteau County Medical Society, April 5, 1939.

Barry County Medical Society, April 6, 1939.

Dekalb County Medical Society, May 23, 1939.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society, July 20, 1939.

Mercer County Medical Society, July 21, 1939.

Linn County Medical Society, August 1, 1939.

Pettis County Medical Society, August 8, 1939.

a volume intended to increase the physician's general knowledge of the subject and give a clearer perspective of the entire problem.

In its broadest aspect the subject matter is divided into four sections, viz., (1) forward failure, (2) backward failure, (3) mixed types of circulatory failure, (4) summary.

The commonly encountered types of forward failure are mentioned with examples such as are encountered in practice. Considerable space is devoted to backward failure including the questions of edema formation, dyspnea in its various types and their mechanism of formation according to present day concepts. There are numerous illustrations of experimental work. A short chapter describes the signs and symptoms in circulatory disturbances which are not accompanied by failure. This is a very readable book that sets out with a definite objective and retains its perspective throughout.

R. S. C.

A TEXTBOOK OF CLINICAL NEUROLOGY. With an Introduction to the History of Neurology. By Israel S. Wechsler, M.D., Professor of Clinical Neurology, Columbia University, New York; Neurologist, The Mount Sinai Hospital; Attending Neurologist, Neurological Institute, New York. Fourth edition, revised. Philadelphia and London: W. B. Saunders Company. 1939. Price \$7.00.

This edition of a well-known textbook has undergone the revision necessary to bring it up to date. The popularity of the work indicates that it fills a need and no extended review is necessary. It may be remarked that the work is apparently intended for the use of undergraduate students rather than as a reference book, and that condensation has been carried to the point of making the style that of an outline. The disadvantages of such a manner of presentation scarcely need be mentioned. Oversimplification and the omission of important details are unavoidable; theoretical and controversial points must be accorded but scant attention. Hence the beginner may often gain a false impression of the true status of a topic and will miss much that makes a subject interesting and stimulating.

I mention only a few deficiencies. The term "abiotrophy" is not found in the index. There is no mention of the value of agents that promote blood clotting in spontaneous subarachnoid hemorrhage or of sodium-phenobarbital intravenously in status epilepticus. The use of sodium iodide intravenously in herpes zoster is not mentioned. Indeed, treatment everywhere is given the most brief attention. Finally the neuroses are presented in fifty pages when it would have been better to omit the subject altogether.

On the other hand the matter given is entirely authentic and is well and clearly presented. With its limitations in mind, the work can be recommended.

L. B. A.

BOOK REVIEWS

FAILURE OF THE CIRCULATION. By Tinsley Randolph Harrison, M.D., Associate Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee. Baltimore: The Williams & Wilkins Company. 1939. Price \$4.50.

This text, in its second edition, is dedicated to bringing into closer relation the what and why as related to heart disease. The general theme employs the scientific methods of physiology, biochemistry and immunology to accomplish its purpose. Therefore, this text is not a ready reference work on treatment but rather

TREATMENT BY DIET. By Clifford J. Barborka, B.S., M.S., M.D., D.Sc., F.A.C.P., Department of Medicine, Northwestern University Medical School, Chicago, Formerly consulting Physician, The Mayo Clinic. Illustrated. Fourth edition, revised. Philadelphia, London, Montreal: J. B. Lippincott Company. 1939. Price \$5.00.

This is a meticulous presentation of diets useful in the treatment of disease which cannot fail but be eminently useful to the general practitioner. Theoretical concepts are briefly outlined and followed by a variety of menus suitable for each disease entity. The single possible fault of the volume is that it does not contain the analytic tables so necessary to the specialist in diet therapy.

B. Y. G.

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COMBINED USE OF TYPHOID VACCINE AND NEOPRONTOSIL IN TREATMENT OF GONOCOCCAL ARTHRITIS

RAYMOND O. MUETHER, M.D.

AND

KENNETH R. ANDREWS, M.D.

ST. LOUIS

Gonococcal arthritis is a disease, or perhaps we should say syndrome, that is more common than is generally realized. The failure to recognize this disease more often is because it is more variable in its manifestations than is thought. The textbook picture of an acute infection of the joints which is migratory finally localizing in one joint, usually the knee, is good so far as it goes, but if only those cases are diagnosed many cases of gonococcal arthritis will be missed. The disease may at times be mild in character, so mild in fact as to permit the patient to be ambulatory. On the other hand, the disease may be ushered in with a chill, high fever and severe prostration. Pain may be so severe as to be unbearable and recourse to morphine may be necessary. The condition may be mono-articular from the beginning or it may be migratory. At times it is difficult to differentiate it from acute rheumatic fever. The disease may pass through the acute phase rapidly and a chronic crippling arthritis may result indistinguishable in form from the so-called rheumatoid arthritis.

It is possible to recognize at least four types of gonococcal rheumatism: (1) the mild and transitory, (2) the acute mono-articular, (3) the migratory, and (4) the chronic deforming. It is important to recognize these types since the treatment and prognosis depend somewhat on the type encountered.

It is obvious at once that if this condition can assume so many forms the absolute diagnosis may at times present some difficulty. The diagnosis must rest on the evaluation of all the available data and can never be made on the basis of history alone. The complement fixation test^{1, 2, 3, 4} has been of considerable help to us in our work with this disease.

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We have found that false positives are quite rare while false negatives do occasionally occur. The false negative is usually obtained in the early cases when the infection is confined to the anterior urethra. The complement fixation test is usually positive after the first week of the infection and will usually become negative in from three to four weeks if the infection is entirely cured. In some of our cases we have found positive fixation tests associated with arthritis twenty years after the original urethral infection had subsided, the patient having no genito-urinary symptoms in the interim. We feel that the gonococcal fixation test should be given serious consideration and if positive should be repeated and a thorough check made of the genito-urinary system in an attempt to find a focus of infection. In men the focus is most often found in the prostate or seminal vesicles, while in women the infection may lie dormant in the fallopian tubes, glands of the cervix, Skene's ducts and Bartholin's glands.

When a patient suspected of having gonorrheal arthritis has a swelling of the joint, the joint should be aspirated and the fluid examined microscopically and cultured. Complement fixation tests also should be done. It is difficult to find the gonococcus on direct smear of joint fluid,⁵ but careful search will reveal them in about 10 per cent of the cases. The culturing of the gonococcus requires a special technic involving the use of special media and reduced oxygen tension.^{6, 7, 8} The material to be cultured must be planted immediately after it is obtained on media that has been previously warmed. The growth of these organisms from the joint fluid is absolute evidence that the patient is suffering from a gonococcal infection of the joint. A positive complement fixation test obtained on the joint fluid is also strong evidence that the infection is gonococcal in origin. Keefer⁹ and his associates have shown also that there is some change in the cytology of the joint fluid of gonorrheal arthritis which tends to help differentiate it from other septic involvements of the joints.

The roentgen ray also may be used to help in a differential diagnosis of this condition particularly if the case is seen early since gonococcal involvement of the joints is associated with an early de-

struction of the joint surface. The destruction occurs more rapidly than in most other bacterial infections of joints.

Once the diagnosis is made the problem of suitable therapy must be faced and this is indeed a serious problem since, as is well known, delay or improper treatment may result in a fixation of the joint, and in some instances may lead to the development of such complications as septicemia or endocarditis.

The treatments that have been suggested for this disease are so numerous that it would be impossible to discuss them all adequately and therefore many will be omitted or merely mentioned. The local treatment of the infection in the genito-urinary tract is, of course, of primary importance. The surgical treatment was probably the first of the modern methods to be used in the treatment of gonococcal arthritis and consisted, at least at first, of the application of a cast which almost invariably resulted in fixation of the joint or joints. This method has been abandoned. Surgical drainage is a much better procedure and one which we have used extensively in the past. The incision is made through the point of maximum tenderness and is extended, if necessary, into the joint. Passive motion is started at once and the patient urged to start active motion as soon as possible. Between periods of activity the joint may be splinted with sand bags or a basket splint. This procedure has given satisfactory results and has eliminated almost entirely the problem of ankylosis. The chief disadvantages of this method are the necessity for open drainage and the long hospitalization. Other methods which accomplish essentially the same thing have been advocated from time to time such as the introduction of air or oxygen into the joint and through and through drainage of the joint by means of large caliber needles.

Most of these procedures have been relegated to the past by the use of fever therapy. Hench¹⁰ and others^{11,12} have reported on the efficacy of fever therapy and it enjoys wide popularity. The chief difficulty associated with this treatment is the expense and the lack of facilities for the proper administration of the treatment in many institutions.

When sulfanilamide was introduced and its efficacy in acute gonorrhea noted, it was tried immediately in gonococcal arthritis but we did not obtain satisfactory results. Recently Ballenger and others^{13,14,15} reported on the successful use of sulfanilamide and fever therapy combined in the treatment of various gonococcal infections. This is apparently a satisfactory method but has the same objections as the use of hyperthermia alone.

With this in mind, it was decided to try the effects of disodium 4 sulfamido-phenyl 2 azo 7, acetyl-amino-1-hydroxynaphthalene 3-6 disulfonate (neoprontosil, soluble) by mouth combined with fever therapy in the form of intravenous injections of typhoid vaccine since this would, if successful, give an economical method of therapy.

The series we are reporting is small, containing only eight cases, but the success of the treatment was so uniform that it seems worth reporting.

All the cases reported in this series had (1) definite history of gonorrhea, (2) positive gonococcal complement fixation test on the blood, (3) positive smears from the urethra, (4) typical involvements of the joints. In addition, complement fixation tests on the joint fluid of two cases were positive. The other cases did not present effusions and so material for this test was not available.

PROCEDURE

After the diagnosis of gonococcal arthritis was made, the patient was hospitalized and the treatment started. Each patient was placed on neoprontosil tablets, the dose being 10 grains every four hours day and night. Usually the patient was placed on this treatment for two days or more before the typhoid injections were started to determine whether the patient would improve on the neoprontosil tablets alone. When the typhoid was started, ten million organisms were given in the vein and the dose was increased to twenty-five million on the second injection and to fifty million on the third injection. After this dose was given, the dosage was increased on the basis of the febrile response elicited by the previous injection. The first few injections may be given every day but when the reactions become severe an interval of at least one day should be allowed to elapse before another injection is given.

Of the eight cases to be reported, two of the patients receive neoprontosil alone followed by typhoid alone and finally when no marked response was noted the two were used together.

RESULTS

Since the series of cases to be reported is short, the results can best be presented by giving the reports of the cases.

REPORT OF CASES

Case 1. E. B., a female, aged 15 years, unmarried, entered the hospital on July 29, 1938, complaining of severe pain in the left ankle. Two weeks previous to the clinic admission the patient had been awakened by a severe pain in the right ankle which was swollen and red. This joint subsided during the course of the next day and from then on the patient suffered from a migratory type of arthritis. Two days before clinic admission the pain and swelling localized in the left ankle and remained there. The cervical smears and urethral smears contained gram negative intracellular diplococci. The gonococcal fixation test was strongly positive.

On admission to the hospital an electrocardiogram showed a normal curve. The gonococcal fixation was repeated and was again strongly positive. The white cell count was 11,900; Hb. 14.5 grams; red cell count 4,300,000; the Schilling differential was 10 per cent stabs, 82 per cent segments and 8 per cent lymphocytes. The patient was given neoprontosil tablets by mouth, 10 grains every four hours, and was observed for three days. At the end of this time she was still in great pain and the temperature was still elevated. The neoprontosil was discontinued and the patient was given typhoid vaccine intravenously starting with ten million organ-

isms intravenously. These injections were repeated daily for three days but again there seemed to be no discernible progress and so the typhoid injections were stopped. The patient failed to improve in the next three days and the combined use of neoprontosil tablets and typhoid vaccine was begun. Neoprontosil tablets (10 grains every four hours) were given and twenty-four hours later the first injection of vaccine was given. Twenty-four hours after the combined treatment was started the patient noted marked relief of pain. This was so marked that codeine could be omitted for the first time since admission to the hospital. The patient continued to improve and after three injections no swelling remained and the pain was noted only on forced movement of the joint.

The patient received two more injections of typhoid and the prontosil was continued for one week. She was discharged four weeks after admission with complete restoration of joint function. Evidence of disease in the pelvis persisted but the smears were negative and the culture of the discharges were also negative. The patient has remained well to the present time, six months after admission to the hospital.

Case 2. J. F., female, aged 21 years, married, entered the hospital August 12, 1938, after having received prontosil for five days in the clinic without improvement. The patient stated that she had noticed fleeting pains in the joints for two or three weeks and that they had become worse in the last few days. The shoulder had become swollen, red and tender to touch. The sternoclavicular joint also was involved. It was tender, swollen and red. The patient had had no other joints involved. General physical examination failed to reveal anything abnormal except the pelvic examination revealed a subacute bilateral salpingitis. The cervical and urethral smears were positive for gram negative diplococci. The gonococcal complement fixation test was positive. The test repeated one week later was again positive. The sternoclavicular joint was aspirated but no fluid obtained. The patient's red cell count was 4,350,000; Hb. 15 grams; white cell count 14,600, and the Schilling differential was 3 per cent stabs, 68 per cent segments, 1 per cent eosinophiles, 3 per cent mononuclears, 25 per cent lymphocytes. The Wassermann and Kahn tests in this patients, as in all the other patients, were negative. The diagnosis of gonococcal arthritis was made and the combined treatment of typhoid vaccine intravenously and neoprontosil administered orally was started. The patient gave marked reactions to the injections of typhoid and the injections were given only every other day. The first injection was followed by a marked improvement and after the third injection the patient was entirely comfortable. The medication and injections were continued, however, and three more injections were given before the patient was discharged to the outpatient department for observation. One of the outstanding things about this patient was that she retained good function of the arm and did not have to undergo the long, and sometimes painful, process of limbering up the joint. This patient has been seen regularly in the outpatient department since she was discharged from the hospital eight months ago and has had no recurrence of her arthritis although she does have some residual disease in the pelvis. The cervical and urethral smears continue to be negative. Gonococcal fixation test done on October 30, 1938, was still positive although the reaction was less strong.

Case 3. E. S., female, aged 28 years, married, entered the hospital August 11, 1938, complaining of pain in the great toe of the right foot, left ankle and left wrist. All these joints were red and swollen. The migratory arthritis began two weeks before admission to the hospital. The cervical and urethral smears were positive as was the gonococcal fixation test. Fluid from the joint failed to reveal the gonococcus but the fixation test on the joint fluid was positive. The patient immediately was

started on the combined therapy and responded as had the others. The first reaction following the administration of the typhoid vaccine and neoprontosil tablets resulted in marked relief of pain and after the second injection the symptoms disappeared, the swelling and redness subsiding completely. A third injection was given and the patient was so well that she refused to remain in the hospital and was discharged to the outpatient department. The patient did not return for follow-up and has not been seen since she left the hospital at which time the salpingitis was improved and the cervical and urethral smears were negative although the gonococcal fixation test was still positive.

Case 4. M. B., male, aged 38 years, married, entered the hospital August 22, 1938, complaining of pain and swelling in the right knee of ten days duration. The knee was not red but it was tender and swollen. No other joints were involved and none had been involved. There was a history of gonorrheal infection eight months previous to present onset.

Physical findings were normal except for tender prostate and the joint involved. The prostatic secretion yielded gonococcus and both the joint fluid and blood gave a positive gonococcal fixation test. The white cell count on admission was 25,000; red blood count and hemoglobin were normal; Schilling differential count showed an infectious blood picture.

The patient was given twelve intravenous injections of typhoid vaccine in ascending doses over a period of twenty-four days, and the neoprontosil tablets were given in the usual manner, e.g., 10 grains every four hours night and day.

The patient was markedly improved in about seven days but the treatment was continued because the swelling and stiffness had not completely subsided. The patient had complete return of function in twenty-one days and was discharged from the hospital.

Case 5. Female, aged 32 years, married, entered the hospital August 18, 1938, complaining of pain in the right wrist and elbow and left knee for one week. The joints were red and swollen but no free fluid was present and the joints could not be aspirated. Patient had had an acute gonococcal salpingitis several years before and two weeks prior to onset of joint symptoms had return of pain in lower quadrants with fever and discharge. Examination of the pelvis revealed bilateral subacute salpingitis with positive cervical smears. The gonococcal fixation test at the time of the pelvic examination and on admission to the hospital was strongly positive.

The patient was immediately put on neoprontosil tablets and typhoid vaccine intravenously. After three injections of the vaccine which produced febrile reactions reaching 103 F., the pain and swelling subsided and there was fairly good motion in each joint. Three more injections were given and the neoprontosil was continued for one week after discontinuing the vaccine. The patient left the hospital free of joint symptoms and with good function of joints twenty days after admission. She continued under observation for four months without return of joint trouble.

Case 6. R. R., male, aged 35 years, married, entered the hospital October 8, 1938, complaining of pain, swelling and redness in the right knee. One week prior to admission he had noticed pain and swelling in the right elbow which disappeared in twenty-four hours followed by swelling and pain in the left elbow and finally the right knee.

General physical examination revealed nothing abnormal except prostatitis with positive smears for gonococci in prostatic secretions. The gonococcal fixation test was strongly positive. The blood counts and hemoglobin were not unusual and there was a slight shift in the Schilling count.

Pain was severe and from $\frac{1}{2}$ to 1 grain of codeine was required to relieve it. The temperature fluctuated

between 100 and 101 F. Combined therapy was started at once and the patient was markedly relieved of pain six hours after the first febrile reaction from the vaccine. The combined therapy was continued for two weeks. The patient had six chills in all. The neoprontosil by mouth was continued for six weeks and patient was discharged twenty days after admission with good joint function.

Case 7. B. T., female, aged 25 years, unmarried, entered the hospital December 15, 1938, complaining of pain in the small joints of the hands, the elbows and the knees. Patient had not been feeling well for several days. The patient felt that the present illness had started with a cold. In addition to the joint symptoms the patient complained of cough and fever.

Examination revealed a well nourished female who seemed to be in considerable distress. Physical findings were normal except for some moisture in the bases of both lungs which was consistent with a diagnosis of acute bronchitis; pelvic examination revealed a subacute salpingitis and the smears were positive for gonococcus. The examination at this time failed to reveal any evidence of joint involvement although the patient said the joint hurt on motion. The white cell count was 9,250; the Schilling showed infection, sedimentation rate was rapid and the red cell count and hemoglobin were normal. The patient seemed to improve and symptomatic treatment was used for five days. At this time the patient became very ill, the temperature was elevated to 102 F., and the joints became red and swollen. Gonococcal fixation test at this time was strongly positive and two days later was again positive. The blood cultures were negative and an electrocardiogram was normal. Neoprontosil (oral) was started on December 23, 1938, and the first injection of typhoid vaccine was given on the following day. Relief of pain was marked in twenty-four hours and the patient was well enough to be discharged in one week following only three injections of typhoid vaccine. The patient has remained well and was last seen in the clinic on January 12, 1939.

Case 8. G. H., male, aged 25 years, was admitted to the hospital December 10, 1938, complaining of excruciating pain in the right ankle and knee for two weeks. Patient had had a similar attack two years previously and had been completely free of discomfort since that time. Patient had noticed a urethral discharge since the beginning of the present attack.

Examination of the patient revealed swollen and red ankles and swelling and redness of the right knee from which fluid was obtained for examination.

The red blood count was normal as was the hemoglobin. The white blood count was 13,000 and the Schilling count showed infection. The complement fixation test for gonococci was positive on four occasions and the fluid from the joint also gave a positive reaction. The smear from the prostate was positive for the gonococcus but the joint fluid was negative by direct examination and culture.

Neoprontosil (oral) was started and after twenty-four hours the intravenous injection of typhoid vaccine was begun. The patient noted marked relief of pain twenty-four hours after the first injection and this improvement continued and the patient was discharged on January 2, 1939, with no joint pains. The patient has continued to do well since discharge.

DISCUSSION

There can be little doubt that recent progress in the treatment of gonococcal arthritis has done much to improve the prognosis in this debilitating disease. This paper is intended primarily to present the possibility of using a simple and economical and, in some respects, superior technic for the treatment of this syndrome. Typhoid vaccine has been used fre-

quently in the treatment of chronic arthritis, including gonococcal arthritis, with good results and we, too, have had considerable success with it. We have never, however, seen as marked and consistent improvement as was obtained in the present series when the vaccine was combined with neoprontosil tablets. Sulfanilamide and related compounds have failed to produce satisfactory results when used alone in the treatment of gonococcal arthritis and until the present series was started had been abandoned by us as a means of treating the condition. The combined use of typhoid vaccine and neoprontosil seems to be a definite advance in the treatment of gonococcal arthritis. The use of a specific vaccine might be of greater value but we have had no experience with such a combination although the combined use of gonococcal filtrate and neoprontosil seems to yield indifferent results. When we began the use of neoprontosil tablets we were much interested in the possibility of undesirable reaction but continued use has failed to produce a single such reaction. In our experience neoprontosil tablets in the dosages used failed to alter the red blood cell count or white blood cell count; cyanosis was not present in any case although the skin may become pink from the dye contained in the drug.

The concentration of the drug in the blood never reached the levels found when sulfanilamide is used and this does not seem to be necessary. Concentration of from 1.5 to 3 mgm. per cent in blood seems to be entirely satisfactory.

The combined use of neoprontosil tablets and typhoid vaccine in gonococcal arthritis in eight cases reduced the average stay in the hospital from fifty days to less than twenty-five days but this was only a part of the picture; the rapid and marked relief of pain was an outstanding clinical finding as was the rapidity with which function of the joint was restored. When effusions existed in a joint they began to subside in from forty-eight to seventy-two hours.

The mechanism whereby fever enhances the effectiveness of sulfanilamide and its compounds is not known but recent work by H. J. White and J. W. Parker¹⁶ seems to indicate that the bactericidal activity of the drug is improved by increased temperature at least in vitro.

CONCLUSION

Fever therapy in the form of typhoid vaccine intravenously combined with neoprontosil succeeds in reducing hospital stay of patients suffering from gonococcal arthritis about 50 per cent.

Pain was relieved promptly usually within the first twenty-four hours and when cases were seen sufficiently early damage to cartilage and impairment of joint function was prevented.

No untoward results were noted from the combined use of the therapeutic agents, neoprontosil tablets and typhoid vaccine.

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ACUTE PUTRID LUNG ABSCESS

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The predominant form of abscess of the lung is the putrid type. This is so frequently seen that a lung abscess is usually considered putrid until on rare exception it proves to be otherwise. It differs radically in history and pathogenesis from the infrequent nonodorous suppuration due to pyemia, staphylococci or pneumococci infection, or gangrene following infarction or severe pneumonia. The term "putrid" is used as a matter of convenience in description. However, the fetid odor is so distinctive that its association with pulmonary suppuration may be considered indicative, for all practical clinical purposes, of the definite pathological entity which will be described. Cultures from putrid abscesses yield anaerobic fusospirochetal microorganisms that are responsible for the pathological condition and the putrid odor, evanescent as it may be in some instances.

There is a great diversity of opinion of the etiology and management of putrid lung abscess. This will not be a dissertation on the various theories and modes of treatment extant but will stress a tenable concept and operative control which has

greatly reduced the mortality and complications of the acute and chronic cases. This rationale was first advanced by Dr. Harold Neuhof and Dr. Harry Wessler at the Mount Sinai Hospital in New York City. It is based on a study of more than 300 cases, 65 of which were operated upon during the acute stage.

PATHOLOGY

Putrid lung abscess is caused by the aspiration of anaerobic microorganisms.¹⁻² About 25 per cent of the cases studied followed tonsillectomy performed under either general or local anesthesia and 12 per cent followed tooth extraction. In about half the cases no initial factor was recognized. However it was felt that aspiration of tartar from infected gums occurred during sleep when the deglutition and coughing reflexes were depressed.³ The assumption of bronchogenic etiology of putrid lung abscess is supported by: (a) the similarity of the anaerobic bacteria in the abscess to those in pyorrhea alveolaris, (b) the usual incidence of a unilateral abscess, (c) the peripheral location of the abscess in the pulmonary lobe and its invariable communication with a secondary bronchus, (d) the greater incidence on the right side and lower portion of the lung, probably due to the straighter course and size of the right bronchus.

In differentiation, lung abscesses of embolic origin usually have a septic source of infection and are spread by venous channels. They occur as a silent secondary complication of pyemia and rarely require operative drainage. The abscesses are multiple, are distributed diffusely through the lung and only inadvertently communicate with a bronchus. The causative organisms are staphylococci and streptococci. In addition, pyemia caused by anaerobic fusospirochetal organisms is exceedingly rare.

It is felt that the severe necrotizing lesion may be explained by the Schwartzman phenomenon. Cultures taken at operation show *Streptococcus haemolyticus* gamma, a "doubtful" anaerobe, diphtheroid bacilli and strictly anaerobic *Bacterium melaninogenicum*. The toxin elaborated by the symbiosis of the streptococcus and *Bacterium melaninogenicum* seems to be the active sensitizing agent. Many other spirochetes, bacilli and their mutation forms are also present.⁴

A study of more than 300 cases shows that the aspirated infected material lodges in a terminal bronchus in the periphery or surface of a lobe of the lung.⁵ This may face the ribs, diaphragm, mediastinum or an interlobar septum. A violent local pneumonitis is caused and a marked pleuritis, forming indurated adhesions, develops early in the overlying pleura. After several days the gangrenous centers of the larger abscesses slough.

The putrid necrotic lung tissue, at its apostasis, usually erodes into a bronchus and may be partly coughed up or may invade other bronchi. This may adequately evacuate and aerate a small cavity and result in a cure. An open lesion is one in which

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there is free communication and drainage through a bronchus. In a closed lesion, there is no drainage through a bronchus because of an obturator of pus or blood. Frequently, however, the process progresses insidiously to the chronic form in spite of the evacuation and medical treatment. The typical acute putrid lung abscess averages from 3 to 7 centimeters in diameter. The cavity contains sloughed necrotic foul pus and detritus with air. One or more patent bronchial opening can be found. The abscess is surrounded by a zone of violent pneumonitis which may contain one or more communicating abscesses. The cavity is located peripherally in the lobe and is separated from the chest wall by a thin, avascular, necrotic shell usually not more than 2 centimeters thick. There is an area of indurated pleural adhesions and pleuritis immediately overlying the abscess.

This disease is characterized by its insidiousness. The infection persists and marked fibrosis develops in the surrounding parenchyma. The foul material spills over into adjacent bronchi to form multilocular cavities or putrid bronchopneumonia. The subacute stage is arbitrarily set at six weeks from onset of illness. In the chronic stage, from three to four months, there is extensive bronchial infection and dilatation. The lung tissue is fibrotic and indurated as in an old bronchiectasis and may completely obscure the picture of a lung abscess. The causative abscess cavity is, by this time, smooth walled, has visible bronchial fistulae and contains putrid contents or air. At this stage there is no possibility of spontaneous cure.

The most serious complication is perforation of the abscess into the free pleural cavity. This occurs in about 10 per cent of the acute cases. While the time varies widely, this complication usually happens in the third or fourth week of the disease. The invariable pleural adhesions overlying the abscess are usually indurated and firm. The majority of the abscesses appose the thoracic wall while a few face the mediastinum, diaphragm or an interlobar fissure. There may be an early rupture of the abscess into the pleuritic area to form a localized perforation. This is often not recognized before operation. When the adhesions are insufficient or if the perforation is close to the periphery of the pleuritic area, the abscess may rupture into the free pleural cavity. The putrid pyopneumothorax is sometimes the first appreciable indication that the original condition in the lung was really an abscess. The signs of this catastrophe are violent and will not be discussed here.

The complications of the chronic state are amyloidosis of the kidneys, spleen and liver. Putrid embolic abscesses form in the brain, bones and elsewhere. Perforation is common.

CLINICAL COURSE

The initial symptoms of putrid lung abscess are usually mild resembling an ordinary respiratory infection. The clinical diagnosis depends upon:

(a) the type of onset, (b) foul sputum, (c) fetid breath, (d) chest pain and (e) hemoptysis.

The incubation period is from three to six days from the time the lung infection occurs. The illness begins with a slight, irregular fever which may rise to about 102 F. attended by chilliness and sweats. The patient becomes more severely sick. There is a dry, persistent cough which shortly yields a mucopurulent expectoration. A severe, localized pain soon develops in the chest. This is due to the subjacent pleuritis and marks the site of the abscess. This area is tender to pressure. In about a third of the cases the chest pain precedes the onset of cough. Its location is atypical if the abscess borders an interlobar fissure, the diaphragm or heart. In these instances, it may be referred to the supraclavicular fossa, trapezius ridge or to the abdomen.

There is no odor to the breath until the abscess communicates with a bronchus. This usually occurs on about the twelfth day of the disease but may vary considerably. The first pathognomonic sign of bronchogenic lung abscess is the appearance of foul breath and sputum. The sputum is copious, ranging up to three or four ounces a day. The putrid odor is distinctive and easily recognized after a little experience. However, after the first discharge of foul sputum, the expectoration may lose its odor and only the breath remain fetid. The unpleasant odor may be so transient and elusive that it is recognized only on bronchoscopy. If the draining bronchus is small, the abscess may be shut off by an obturator of pus and blood and the putrid odor and sputum will be absent.

Hemoptysis is a quite constant finding. It is more common in this condition than in tuberculosis or infiltrating carcinoma. With the first gush of expectoration there may be a frank hemorrhage. After this the sputum is blood streaked.

Physical findings are notoriously meager and not pathognomonic. Even when a fully developed abscess is present and the patient appears very ill only scattered fine rales and a small area of dullness may be recognized. Tenderness to pressure over the area of thoracic pain is due to the intercostal and pleural induration.

When, and if, the abscess is spontaneously evacuated by coughing up the contents, the patient immediately appears to improve clinically. The toxicity and fever decrease, the expectoration may become less or remain unchanged and the outlook seems brighter. Two important features must be stressed. First, there may be satisfactory clinical improvement while the underlying pathological process deceptively advances to the subacute stage or remains stationary. As a corollary, one must not be satisfied with outward appearances which are not accompanied by a comparable reduction in pulmonary infiltration on repeated roentgen ray studies. Second, the majority of post-pneumonic abscesses are veritably unrecognized abscesses from the inception of the illness. The abscess either may

be obscured by the pulmonary infiltration seen by roentgen ray or it may not become sufficiently evacuated to be differentiated. Heretofore these cases have been erroneously termed primarily a pneumonia with secondary abscess due to lack of resolving. It is important that the true pathological condition be recognized early.

In the subacute stage an anemia gradually develops. The sputum continues to be foul and blood tinged. The finger and toe tips become clubbed early. In cases of recrudescence, the fever, chilliness, productive cough and roentgen ray findings of pulmonary pathological condition return.

After three or four months, in the chronic stage, the clinical course varies. The involved lung is indurated, fibrotic and bronchiectasis appears. The patient may be quite comfortable, having a minimum of clinical symptoms with profuse expectoration of foul sputum. In other instances, the sputum loses its odor and the general picture is that of a primary bronchiectasis. In a third type, there are periods of fever, chills, chest complaints and foul sputum.

The anticipation of life is about three years. Death is due to advancing cachexia, amyloid degeneration of the viscera, myocarditis or bronchiectasis, and to putrid purulent emboli to the brain, kidney or long bones. In the acute stage, death may be due to (1) the spread of the disease within the lung by direct spread or spilling over to cause acute gangrenous bronchopneumonia, (2) perforation into the free pleural cavity or into the pericardial sac, (3) fatal pulmonary hemorrhage.

LOCALIZATION OF LUNG ABSCESS

It is important to localize the lung abscess in its relationship to the thoracic wall. This must be exact in order to perform the one stage operation that is advocated. Roentgen ray and bronchoscopic studies are equally necessary.

It is not sufficient to recognize indefinitely in what lobe the abscess lies but it is imperative to know what sector of the lobe is involved. There is a definite, constant bronchial architecture in 85 per cent of the lungs.⁶ This greater accuracy in localization is possible by the identification of the bronchopulmonary segment. This is a unit composed of a constantly placed bronchus which branches from the large lobar bronchus and the pulmonary alveoli which it supplies. The orifices of the secondary bronchi are visible to the bronchoscopist; the recognition of the infected bronchus definitely identifies the portion of the lobe involved.

The bronchopulmonary units are practically constant in size, shape, position and projection upon the thoracic cage. They are given a simple nomenclature based upon their position in the lung. The right upper lobe has an apical, anterior, axillary and a paravertebral segment. The right middle lobe is composed of an anterior and an axillary segment. Both lower lobes are identically divided into apical, paravertebral, anterolateral, postero-

lateral and a cardiac or mesial segment. The bronchopulmonary units of the left upper lobe correspond to those of the right upper and middle lobes combined. Each segment, except the mesial, has an aspect touching the thoracic cage and therefore is readily accessible for operative procedures. All the lower lobe segments, except the apical, also have a small area on the diaphragmatic surface of the lung. "The mesial or cardiac segment on each side lies on the diaphragm next the heart and does not come in contact with the thoracic wall. For the sake of uniformity and simplicity, the bronchi associated with these segments are given the same nomenclature. A study of pathologic material reveals the fact that practically all putrid abscesses have a definite position in one of these bronchopulmonary segments. The abscess generally involves most of the segment and always approaches most closely or touches that surface of the segment toward which its main bronchus points."⁶

The most frequently involved bronchi have been, in order of frequency, the apical branch of the lower lobe, especially the right, the anterior and the paravertebral branches of the upper lobe. The middle lobe branches and the axillary branches of the upper lobe have been less frequently involved.

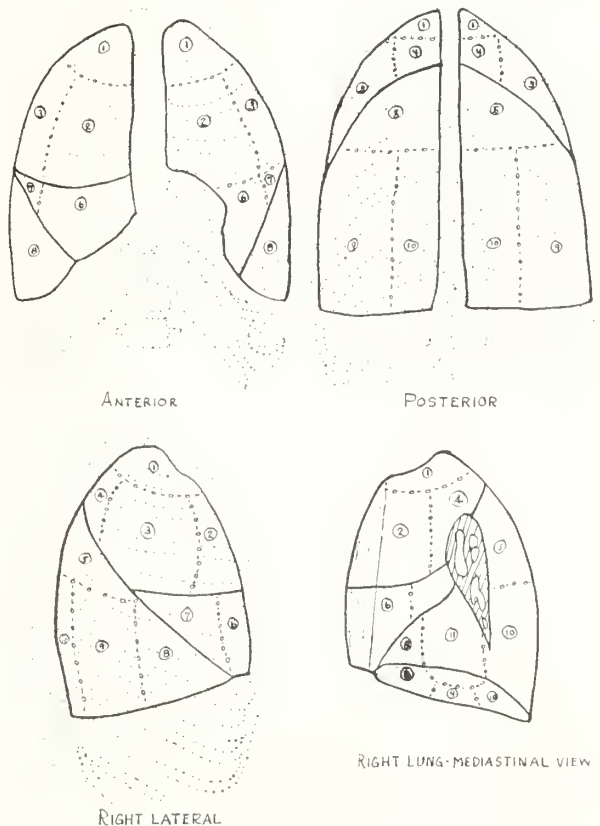


Fig. 1. Bronchopulmonary segments and their relation to the thoracic wall. Right upper lobe: (1) apical, (2) anterior, (3) axillary, (4) paravertebral. Right middle lobe: (6) anterior, (7) axillary. Right lower lobe: (5) apical, (8) anterolateral, (9) posterolateral, (10) paravertebral, (11) cardiac, seen on mediastinal view. The bronchopulmonary segments of the left upper lobe are identical with those of the right upper and middle lobes combined. The lower right lobe and lower left lobe are similar.

The bronchoscopic findings must be correlated with those of the roentgenologist. Sometimes bronchoscopy may be hindered by a patient having a thick short neck, the upper portion of the lung may be fixed or pressure on the bronchial walls may obstruct the view.

On the roentgenogram, all medially placed shadows lie in the posterior segments of the lung close to the vertebral column. The only exception to this is the cardiac segment which, also, always lies on the dome of the diaphragm adjacent to the heart.⁷

All the lateral field shadows are in the axillary segments and approach the surface in the axilla. Most of the middle field abscesses lie in the anterior segments and less often in the posterior segments. A lateral roentgenogram must be made to determine the exact position. Cavities in the posterolateral segments usually occupy posterior or middle lung fields at a low level.

The postero-anterior position is best for roentgenogram. The lateral plate is important for localization and is more definite than an oblique view.

The air and fluid level of an abscess and of a putrid pyothorax are dependent on the patency of the bronchial communication. If the latter is obstructed, the abscess appears as a solid area of pulmonary infiltration. When it ruptures, the fluid in the chest will not demonstrate a fluid level until the bronchus opens. This condition is commonly thought to be lobar pneumonia with effusion. The putrid odor on thorocentesis yields the clue to the proper diagnosis. In a large pyopneumothorax the mediastinum practically never shifts due to the pleural adhesions.

The pathognomonic roentgenogram shows a cavity with fluid level. Infrequently it is difficult to differentiate between a large lung abscess and a localized pyopneumothorax. Typical films are seen in about half the cases. In the other half the following may be present:⁸

(a) Pneumonitis: A localized shadow may be interpreted as being pneumonia while, in reality,

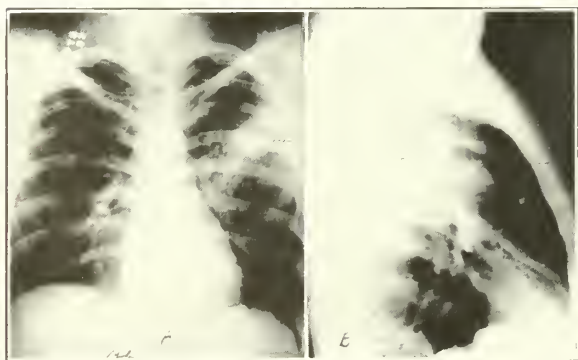


Fig. 2. (a) Abscess of axillary segment of left upper lobe. This is a typical shadow in the lateral lung field and always indicates an abscess in the axillary segment. (b) Side view shows abscess, at this level, to be in the upper lobe. (Dr. Galen Tice, roentgenologist.)

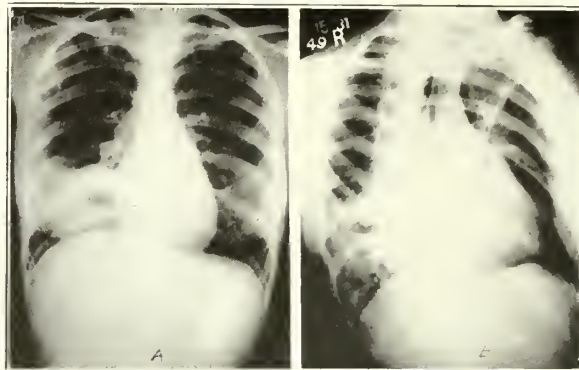


Fig. 3. (a) Paravertebral segment of the right lower lobe. This is a typical inner field shadow indicating involvement of the posterior portion of the lung near the vertebrae. The only exception to this rule is an abscess of the cardiac, or mesial, lobe. (b) Oblique view shows the abscess to be in the paravertebral segment. (Dr. David S. Dann, roentgenologist.)

an abscess almost the size of the shadow may be present and not be visualized.

(b) Pneumonitis with small fluid level: In fact a large cavity may be present but is not recognized due to the surrounding infiltration. The fluid level depends upon the degree of bronchial drainage.

(c) Variation or disappearance of cavity: This is deceptive and is of no significance unless associated with diminution in area of infiltration.

(d) Fibrosis of lung: This is seen in the chronic stages of lung abscess. It may simulate fibroid tuberculosis or chronic bronchiectasis.

(e) Multiple abscesses: These are usually due to a multilocular abscess.

(f) Shadow may suggest carcinoma.

Bronchoscopy with lipiodol instillation is valuable for localization in difficult cases and in patients already operated upon. The oil usually does not enter the cavity because of a plug of debris or edema. This outlines the bronchial tree around the abscess and also demonstrates the extent of the bronchiectasis.

TREATMENT

Of the patients who had acute abscess, when admitted to the hospital, 25 per cent recovered on medical treatment. In these patients the abscess was small or was sufficiently evacuated by expectoration.

In a third of the sixty-five cases operated on, pneumonotomy was imperative soon after admission because of the fulminating clinical course. The recovery after adequate drainage of patients who appeared almost too ill to take an anesthetic was dramatic. The rapid subsidence of toxemia was evident in a day. In two thirds of the operative cases the time of operation was elective and dependent on the progress. Several years ago most operations were deferred until about the third or fourth month of the illness. The internist was deceived by the mild course of the disease and did not think of operative drainage until there was an

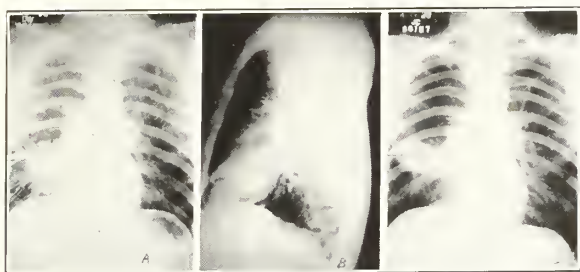


Fig. 4. (a) Abscess in anterior segment of the right middle lobe. This is a typical pneumonitis in the middle lung field. A side view is taken to see whether the shadow is anterior or posterior. (b) The lateral view shows the pneumonitis to be in the anterior portion of the lung which, at this level, is in the middle lobe. (c) Typical lung abscess with fluid level seen one month later. (Dr. David S. Dann, roentgenologist.)

aggravation of the illness. The insidious progression of the lesion to the subacute stage was not generally realized. Now, the surgeon is called in early as consultant and works in coordination with the internist and bronchoscopist. Operation is performed sooner to prevent the sequelae and complications of the subacute and chronic stages.

A patient with a small abscess who is doing well is treated expectantly. Early and proper pneumonotomy is recommended when the progress is not satisfactory or is questionable. Operation is imperative in all perforated cases.

In the unperforated acute abscess, the indications for operation are (a) a toxic clinical course in which there is no spontaneous improvement from one to several days; (b) the lesion appears to be stationary or to be growing larger on successive roentgenograms; (c) the persistence of toxicity after operation indicating gangrenous spill-over infection of new areas, putrid empyema or both; (d) the lesion being close to the heart or diaphragm; (e) roentgen ray or clinical indication of imminent perforation; (f) a "shut-off" lesion or its development in a previously open abscess.

OPERATION

The essential principle of operative treatment of the anaerobic pulmonary abscess is complete unroofing of the abscess cavity. The anesthetic used is avertin and cyclopropane or with nitrous oxide and oxygen. The gas can be varied so that slight straining may be induced during operation to disclose bronchial fistulae or hidden ramifications. A quiet respiration during anesthesia minimizes hemorrhage and septic emboli.

The operation is performed in one stage although a dangerous contingency may sometimes make a two stage procedure advisable. The greatest operative danger is the inadvertent contamination of the free pleural cavity. Other less common occurrences are hemorrhage and septic emboli to the brain and viscera.

The patient is placed on his side with his head lower than his hips. The operative approach must be through the area of pleural adhesions irrespective of its location. In a small lesion, the incision

may parallel the rib; when large, a curved incision is made transverse to the ribs. A subperiosteal rib resection is done carefully so as not to tear into the free pleural space. The intercostal vessels are secured with suture ligatures. Small packings are placed over the rib edges to control the oozing. The rib bed appears inflamed, indurated, lusterless and firm to the touch. A small incision is made through the posterior periosteum and the thickened adherent indurated pleura is exposed. If the subjacent tissue is indurated, edematous and thickened, the incision is deepened through the pleura to the lung.

The abscess is located by aspiration with a moderately long No. 16 or No. 19 needle and syringe. It usually lies about a quarter of an inch beneath the pathognomonic pleuritis. Entrance into it is recognized by the aspiration of a small amount of foul material, foul air or both. If the first exploration is unsuccessful, it is repeated in various directions using a clean needle each time. These punctures must be done cautiously and with discrimination.

When the abscess is located, a sharp grooved Touroff director is inserted along side the needle which is then removed. A sharp double edged scissors is introduced and the blades opened slightly as it is withdrawn. A suction tip is inserted to aspirate the detritus. The cavity is digitally explored and the opening enlarged by scalpel. Some surgeons prefer to use a cautery tip or surgical diathermy for this. The cavity is carefully inspected with a sterile light to reveal the bronchial fistula and communicating cavities. The entire roof of the lesion is removed by excision of ribs and intervening tissue, keeping within the limits of pleural adhesions.

The abscess is then packed open with iodoform or argyrol gauze and rubber tubes placed into every recess under direct vision by the cameron or curvite. Especial care is taken to pack and keep open the internal bronchial fistulae. Paraffin mesh gauze is lined about the subcutaneous tissue and a moist saline gauze dressing is applied.

After rib resection, the presence of slight or no

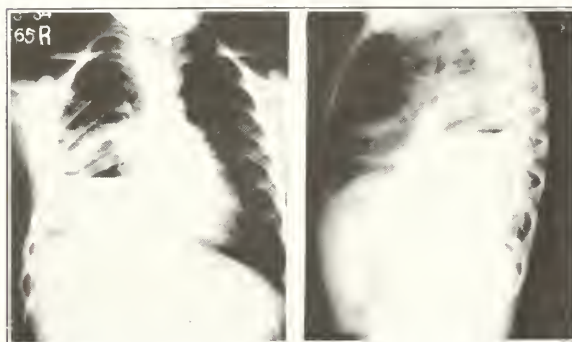


Fig. 5. (a) Abscess of apex of right lower lobe with encapsulated pyopneumothorax in a child. (b) Lateral view shows the abscess to be in the posterior portion of the lung which, at this level, is the apex of the lower lobe. (Dr. David S. Dann, roentgenologist.)

adhesions indicates that the site of approach is not correct. The various diagnostic facts must be reconsidered such as the roentgen ray plates, bronchoscopy and history.

If the free pleural cavity is inadvertently opened before the abscess is reached or if the pleural adhesions are frail, drainage need not be deferred in most instances. Chromic mattress sutures are taken through the muscle, pleura and a liberal portion of the normal lung tissue to approximate the pleurae around a broad area. No minute pleural communication is permitted to be present to prevent further contamination of the clean pleural space. The operation is continued through the center of this protected site. Prophylactic drainage of the free pleural cavity is performed.

However, if no pleural adhesions are found, yet the diagnostic facts indicate the abscess to be close by, a small incision is made into the open pleural space. The examining finger and a sterile light are introduced. If the pathognomonic adhesions and induration are close, the rent in the pleura is sutured and the adjacent ribs are removed for the necessary approach.

When the lung abscess has ruptured, forming a putrid empyema, the approach is made over the abscess. The foul air and debris are evacuated and the empyema cavity is opened widely to provide adequate ventilation and drainage. The lung abscess must be unroofed and packed open. A description of the operative treatment of putrid pyothorax requires more space than is available here.

A continuation of foul expectoration or of toxicity after operation indicates there is an undrained cavity, spill over pneumonia or postoperative empyema. Each requires immediate reoperation. An adjacent abscess will probably not rupture into the operative cavity but may spill over into a feeding bronchus. The facts of the case must be immediately reviewed and the proper drainage performed through the necessary approach. Post-operative empyema may be difficult to locate and is often overlooked. When the drainage is adequate, there is a dramatic clinical improvement.

The packings are not changed for several days depending on the amount of drainage. The walls of the cavity are found to be clean. They may be gently cleaned with cotton moistened with saline. The cavity is lightly packed with iodoform or argyrol gauze at intervals of from three to seven days to prevent too quick apposition of the walls. It rapidly decreases in size. If the wound closes before all of the lung infection has cleared, there usually is a prompt recurrence of symptoms. It is important to maintain the bronchial fistulae until all suppuration has disappeared. A tube is placed to the fistula to provide adequate aeration of the anaerobic infection. The difficulty in healing is not in closing the bronchial fistula but in keeping it open sufficiently long. The cure of infection is judged by the complete absence of foul odor, minimal or absent expectoration, complete disap-

pearance of infiltration by roentgen ray study and normal bronchoscopic findings. If the abscess is small, the wound may be healed appreciably by the time the patient is discharged from the hospital. In some instances, patients are sent home with the tube still in place and return regularly to have it cleaned and replaced. After the tube is removed, the patient is watched carefully; the wound is probed at first to disclose any retention of secretion.

SUMMARY

Practically every case of lung abscess may be considered clinically as the putrid type.

Putrid lung abscess is caused by the aspiration of anaerobic streptococci and fusospirchetal microorganisms.

The diagnosis is dependent on the type of onset, foul odor, foul sputum, chest pain and hemoptysis.

Roentgen findings show definite localization in a bronchopulmonary segment.

About 25 per cent of the cases recover on medical treatment. When there is marked toxicity with no improvement in a few days, pneumotomy is the procedure of choice.

Wide unroofing and packing open of the abscess yield dramatic cures.

The death rate of 3 per cent in the operations on cases of acute abscess was due to complications as spill over putrid pneumonia, putrid empyema or hemorrhage. Two thirds of the cases were cured uneventfully; the remainder are in various stages of satisfactory healing.

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PROPER CANNING WILL HELP RETAIN MUCH VITAMIN C IN FRUIT JUICES

Commercially canned fruit juices retain considerable quantities of vitamin C when proper precautions are taken during the canning process, the July issue of *Hygeia, The Health Magazine* states.

The conservation of vitamin C is generally accomplished by raising the temperature of the juice rapidly, in order to drive out dissolved air and to destroy the "oxidase" which destroys vitamin C. Further conservation of vitamin C is made possible by performing the canning operations under reduced pressure or in an atmosphere of steam.

Citrus fruit juices are acid in reaction, and it has been found that vitamin C activity is retained much better in such a medium than in a neutral or alkaline medium.

RELATION OF URINARY TRACT TO OBSCURE ABDOMINAL SYMPTOMS

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COLUMBIA, MO.

The relation of the urinary tract to obscure abdominal symptoms has been brought strikingly to my attention in the last two years on the University of Missouri Student Health Service. Each year we examine approximately four thousand students between the ages of 16 and 22 years. Before 1936 we had no urological service and during all those years we saw only occasionally a patient that we felt needed a urological examination. In going over those records I find that from time to time we had had numerous patients in the hospital with obscure abdominal symptoms. The diagnosis on most of these cases was chronic appendicitis or chronic enteritis.

In the last two years a great many patients in whom the pain and associated symptoms suggested an intestinal condition, even with a normal urinalysis and normal flat roentgenogram of the abdomen, were found to have a definite abnormal condition in the urogenital tract. With the finding of these abnormal urological conditions in cases that had previously been overlooked, the importance of further examination was seen plainly. Since ureteral obstruction with hydronephrosis is so frequently the cause of these obscure, confusing and often severe abdominal symptoms, it is now our practice to make a complete urological examination on these cases while we have the patients under observation in order to rule out or establish such a diagnosis.

A few years ago most of us were under the impression that any patient with a nongonorrheal urological condition was from 30 to 50 years of age or older. Not long ago a great many articles were written stressing the importance of urological examinations in children. With the introduction of the infant cystoscope urological examinations could be made upon children as easily as upon adults. Bugbee and Wollstein found that 2.3 per cent of the necropsies upon children showed anomalies of the urinary tract, usually some degree of ureteral blockage. These men along with Helmboltz, Bransford Lewis and others have stressed the point that chronic pyuria in infants generally is evidence of obstruction and stasis of the urinary tract.

In our group of patients we are dealing with supposedly healthy young adults. Many of these patients would not have been seen if it were not for the University ruling that students must report to the hospital in order to be excused from classes. Frequently they give a history of having had similar previous attacks at home. They usually had remained in bed for a few days but seldom had called in their family physician. They are of the age, one might say, when they are at the peak of their poten-

tial body strength, with healthy organs capable of overcoming excretory blockage, infection and trauma. The kidneys have an uncanny ability to overcome tremendous obstacles and still maintain their physiological and biological equilibrium. We encounter cases where little kidney tissue is left and the standard tests of function show practically the zero point, yet the blood chemistry remains normal until the very end. Thus, early recognition of these conditions in the young adult is extremely difficult.

It is commonly said by urologists that the majority of cases of hydronephrosis, ureteral strictures and ureteral stones have had abdominal operations. However, little has been said to stress the close relationship between kidney and ureteral disturbances and the gastro-intestinal tract. Colby of Boston, in a paper read before the American Association of Genito Urinary Surgeons, explained this relationship as follows: "The renal plexus of nerves arises by fibers from the solar plexus, the splanchnic nerves, the inferior mesenteric ganglion, a branch of first lumbar sympathetic ganglion and probably fibers from the vagus. Through the inferior and superior ganglia the renal plexus is connected with the sympathetic nerve supply of the stomach and intestines. Anastomoses between the renal plexus and the aortico-mesenteric ganglion which supplies the stomach have been shown to exist and appear to be present most frequently on the right side. Accordingly, the right kidney appears to be closely connected with the stomach, small intestine and the ascending colon. The left kidney is more closely associated with the descending colon and the rectum."

Hydronephrosis has been the subject for much clinical and experimental investigation and for numerous contributions to current medical literature; but in reviewing most of this material the majority of cases reported are far advanced so that extensive operations are necessary. Frequently destruction is of such a degree that nephrectomy is the only possible procedure.

The point I wish to stress is that it is possible to diagnose these cases early if complete urological examinations are made on all patients with obscure abdominal symptoms. With early diagnosis these cases are practically always amenable to conservative treatment which will save the kidneys from otherwise gradual or complete obstruction.

REPORT OF CASES

Case 1. Male student, aged 20 years, was admitted to the Urological Service in October, 1935, complaining of pain in the left lumbar region of the back and in the left side of the abdomen accompanied by nausea and vomiting. There was no pain or burning upon urination. Patient had had similar attacks since childhood. Recently the attacks had become much more frequent and he had been admitted to the hospital five or six times the preceding year with these complaints. Blood count was 6,000 with 67 per cent polymorphonuclear neutrophils. Urinalysis gave normal results. Complete urological examination revealed marked hydronephrosis on the left side with ureteral obstruction imme-



Fig. 1. Comparison of forty-five minute intravenous pyelogram and retrograde pyelogram in case of marked hydronephrosis.

diately distal to the pelvis. Frequent dilatations of the ureteral obstruction over a period of several months gave marked relief. The patient left school but was advised to have treatment every few months or to remain under the care of a urologist.

This is a case of marked hydronephrosis without any definite urinary symptoms. Also, due to the fact that the left kidney was involved, the abdominal symptoms were not as marked as in conditions of the right side.

Case 2. Male student, aged 18 years, with a history of attacks of chills and fever over a period of six or seven years was admitted on the Medical Service at University Hospitals in January, 1936, at which time there was some pain in the regions of both kidneys. He was transferred to the Urological Service and further history revealed that during previous attacks he had been seen by his family physician but because the urine did not show any pus cells he was told that there was nothing wrong with his kidneys. Urinalysis showed a faint trace of albumin but no pus cells. The blood count was 6,000 with 50 per cent polymorphonuclear neutrophils. Complete urological examination revealed a marked bilateral hydronephrosis with proximal ureteral obstruction. By cystoscopy the function of both kidneys with indigo carmine test revealed marked diminution. For the following six months frequent dilatations of both ureters were carried out with marked improvement in the patient's general condition and the function of both kidneys returned to practically normal. Although the roentgenogram still showed marked hydronephrosis the kidney functional tests showed marked improvement. Since that time he has

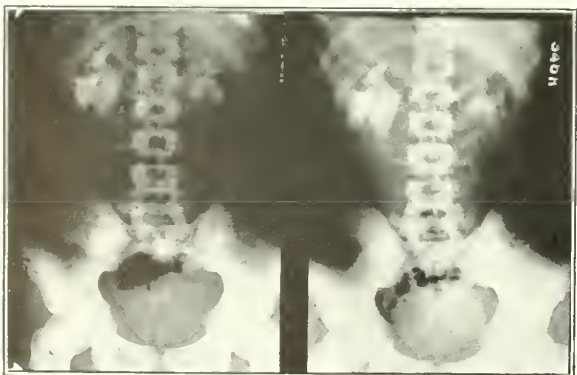


Fig. 2. Thirty minute and one hour intravenous pyelograms in case of bilateral hydronephrosis.

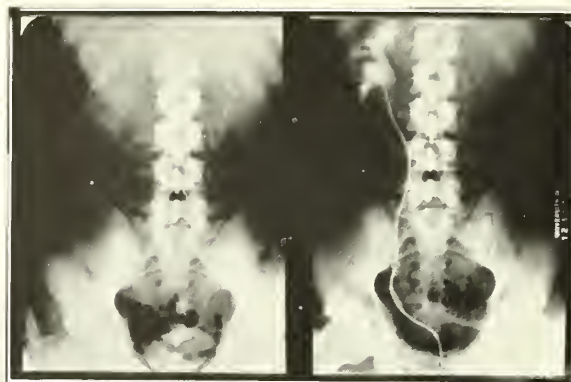


Fig. 3. Comparison of forty-five minute intravenous pyelogram and retrograde pyelogram of case of hydronephrosis.

gained approximately thirty pounds in weight, has had no further attacks of pain in his back and has to be called and urged to come in for check-up.

The interesting thing about this case is the extreme degree of hydronephrosis present without showing any evidence of infection and the marked improvement in the patient's general condition with conservative treatment even though the hydropelvis and hydroureter still exist.

Case 3. Male student, aged 23 years, entered the hospital in December 1937 with severe pain in the left side of the back gradually increasing in severity. He had been working hard during the previous six months. There was some loss of weight but no definite complaint until his present illness. There was some frequency of urination and the first specimen obtained after admission contained some blood. There was no history of urinary trouble previous to this. Abdomen revealed marked tenderness throughout the entire left side with slight resistance. The blood count was 7,000 with 61 per cent polymorphonuclear neutrophils. Nonprotein nitrogen was 50 mgs. per 100 cc. of blood. Intravenous pyelogram revealed a nonfunctioning left kidney. Cystoscopic examination revealed a marked constriction of the left ureter just above the orifice and after the catheter had passed above this constriction approximately 20 cc. of urine was removed under moderate pressure. Retrograde pyelogram revealed marked hydronephrosis. A catheter was left in place for twenty-four hours. This was followed by several dilatations with the return of practically normal function of the left kidney. The patient states that he now feels better than he has for a number of years.

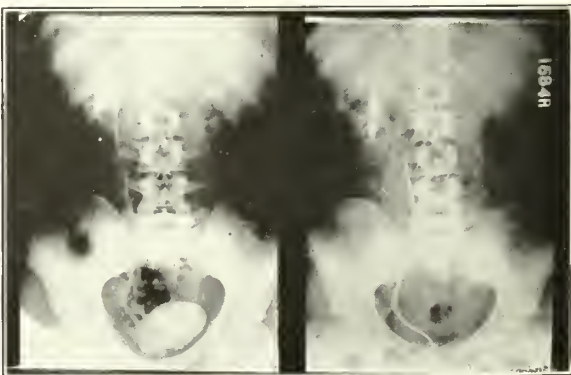


Fig. 4. Case of ureteral stricture. Comparison of forty-five minute intravenous and retrograde films.

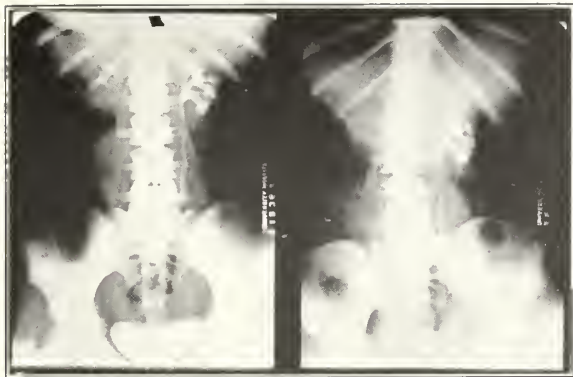


Fig. 5. Ureteral stricture. Comparison of forty five minute intravenous and retrograde films.

This is a case where conservative treatment has been satisfactory but if it had not been investigated when it was there probably would have been complete destruction of the kidney.

URETERAL STRICTURE

Ureteral stricture has been thought to be a rare condition and difficult to diagnose. This, however, is not true. The lesion is common and with the use of the intravenous pyelogram it is simple to diagnose. Ureteral stricture means stasis of urine, often reaching such a degree that it results in a serious retention of toxins which give rise to many symptoms such as headache, irritability and gastro-intestinal symptoms. A common site of obstruction of the ureter is in the intramural portion in close relation to the uretero-pelvic valve. This valve is thought to prevent ureteral regurgitation; but, in reality, the ureteral peristalsis does more to prevent regurgitation than the valve. Many cases of chronic pyelitis are due to congenital strictures of the ureter. Congenital strictures are due to faulty absorption of the central embryonic cells which fill the lumen of the embryonic ureter. We know that congenital ureteral strictures do exist but, generally, they are the end result of pyelo-ureteritis. Early treatment of pyelitis with ureteral drainage may prevent stricture formation.

Our one great source of error in diagnosis has

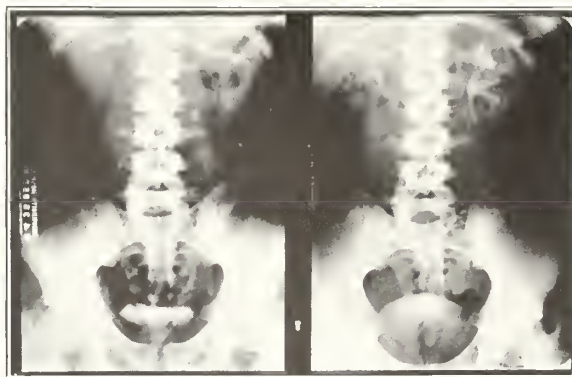


Fig. 7. Intravenous pyelograms before and after removal of stone from ureter.

been our too implicit confidence in urinalysis. It is true that about 20 per cent of cases with stricture finally develop marked secondary renal infection; but our problem is to diagnose these cases early, and we must remember that many patients harbor serious pathological conditions in the kidneys and ureters without showing any warning sign in the urine. The cicatricial changes in the wall of the ureter are of great clinical significance. The acquired stricture may be caused by (1) ureteritis due to localized or secondary pyelonephritis or tuberculosis, (2) trauma due to lithiasis or operation, and (3) secondary involvements due to tumors or peritonitis.

Frequently we have an elongated, tortuous ureter with hydronephrosis and we are prone to consider this the causative factor. Usually, however, if we observe more closely we will find a stricture distal to this tortuosity. It has been shown by experimentation that hypertrophy and hyperplasia of the muscular layers, together with dilatation, occur in a ureter above a point of partial obstruction. This is the result of the efforts of the ureter to expel its contents against an increased resistance. In other words, there is an increase in both the vertical and transverse axis of the ureter above a stricture. It has been shown that many of these cases of stricture have been permanently cured by mere dilations of the ureter at that point. The ureteral stric-

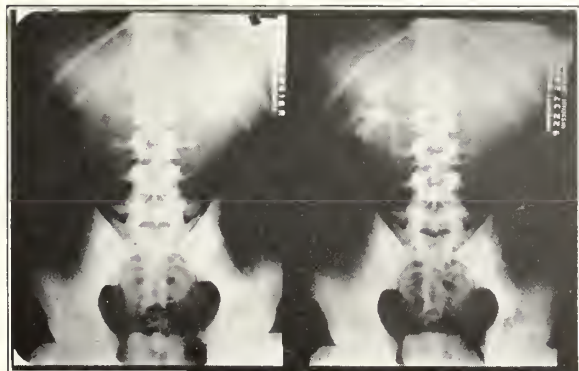


Fig. 6. Stone in ureter. Fifteen minute and one hour intravenous pyelograms.



Fig. 8. Aberrant renal vessel. Intravenous pyelogram and retrograde comparison.

ture with its varied symptomatology is probably the most frequent cause of erroneous diagnosis in abdominal lesions.

REPORT OF CASES

Case 4. Male student, aged 23 years, was admitted to the hospital in December 1936 complaining of pain in the lumbar region of several years' duration, more severe in the last two weeks. Examination revealed tenderness in the region of the left kidney. There was no pain or burning on urination and urinalyses gave normal results. Blood count was 7,000 with 64 per cent polymorphonuclear neutrophils. Intravenous pyelogram showed a left ureteral obstruction with hydronephrosis. Numerous cystoscopic examinations have been made with dilatation of the left ureter at the point of obstruction, starting with a No. 5 olive tipped catheter and increasing the size to a No. 8 olive tipped catheter. The last examination was made in July 1937 at which time a No. 8 catheter was passed readily and the patient has been without symptoms since that time.

In this case a knowledge of the condition with subsequent treatments prevented the possibility of a complete destruction of the kidney.

Case 5. Female student, aged 18 years, had been having attacks of pain in the right lower quadrant of the abdomen for approximately six years. She had been told that she had a chronic appendicitis and had been receiving excuses from gymnasium for the last two years. Upon her visit at the beginning of the semester, I felt it was only fair to the patient to have a urological check-up to rule out any possible abnormality in the right ureter and kidney. The blood count and urinalyses were normal. There was tenderness just below McBurney's point. Intravenous pyelogram revealed a right hydronephrosis with a constriction of the ureter at the ureteral vesicle junction. Cystoscopy revealed the same findings. The constriction of the right ureter was to such a degree that only a No. 4 catheter could be inserted past the constriction in the ureter. Retrograde pyelogram revealed marked blunting of the calyces.

The finding of this abnormality will prevent the patient from having an unnecessary appendectomy, and a knowledge of this condition will allow her to be cared for by conservative methods in order to prevent any further destruction of the right kidney.

KIDNEY STONES

The formation of stones in the urinary tract produces one of the major problems of urology. The causes of their formation is still uncertain, but once they are formed no medication will dissolve them. Unless passed or removed the frequent complication of urinary obstruction and infection produce grave symptoms and eventually irreparable destruction of renal tissue. Procrastination on the part of the patient with stones not too troublesome, delay caused by ignorance of their presence because they are symptomless, a wrong diagnosis or a too frequent mismanagement after discovery accounts for the rather surprising statement of Hunt that "one third of all patients with a stone lose a kidney from destruction or nephrectomy." This statement emphasizes the fact that early diagnosis

and treatment of those conditions which predispose to stone formation is of the utmost importance. Contrary to previous impressions, urinary disorders in the young are of the same character as in the adult. Many urological conditions found in adults are cases in which the trouble had been silent since birth or overlooked in early childhood. The prevalence of urinary calculi in children is well recognized. There are a great many reports on the finding of stones at autopsy in patients in whom this condition was symptomless or extremely obscure in character.

Kretschner in discussing juvenile urology emphasizes the importance of careful history taking, physical examination and clinical digest of all cases in which the finger of suspicion points toward the urinary tract. I say, go one step farther; that is, be careful and thorough always but especially with the cases of obscure abdominal symptoms. Always keep the thought in mind that we may be dealing with some urological condition. Most authors writing upon renal or ureteral calculi stress the point that these stones begin their formation in childhood or early adult life. Urinary obstruction and infection are conducive to stone formation.

We know that vitamins play a definite role in this problem of urinary stones, therefore, I wonder if the following explanation might not have some bearing upon the prevalence of the condition. With all the vitamin concentrates that are placed before the public today, is it not possible that the child is getting too large an amount, especially of the vitamin D which we know is a stone forming vitamin? I have discussed this with pediatricians and I find that they are continually faced with the problem of preventing parents from giving vitamin concentrates to their children thus disturbing the normal balance of the body. Certain vitamins in too large dosage are often detrimental.

Then, we have another problem. In a large city newspaper we see this advertisement, "Vitamin diets for reducers. Take a pill and lose from three to five pounds a week through the addition of vitamin concentrates A, B, and D, and calcium phosphate to your diet." I wonder how many young women read this and instead of taking four capsules of concentrate D and two teaspoonfuls of calcium phosphate, take much larger doses hoping to lose eight pounds instead of four. Time will tell the effect of these vitamin concentrates upon the formation of urinary lithiasis.

In some recent experimental work on the formation of stones, all animals placed on a diet high in calcium and vitamin D formed urinary stones when there was a partial ureteral obstruction and early hydronephrosis. In another group, where complete obstruction of the ureters was carried out with extensive hydronephrosis, there was no stone formation. In the cases of partial obstruction to the ureter there seemed to be an increase in the calcium content of the kidney and an abnormal desquamation of the pelvic epithelium with cal-

cium being deposited around this as a nucleus. The two most important factors in the formation of a renal and ureteral calculi are (1) a dietetic factor such as a calcium phosphorus imbalance or an excess of some foreign substance such as oxamide, and (2) the local factor which leads to the precipitation of the substance which forms the stones. There is a definite relationship between renal calculi and skeletal decalcification. The calcium and other salts coming from the bones are excreted through the kidneys.

REPORT OF CASES

Case 6. Male student, aged 19 years, entered the hospital in September 1937 complaining of pain in the left side of the abdomen. Several days previously he had had severe pain in this region accompanied by nausea and vomiting. There was no pain or burning upon urination. Several years previous to this time he had an attack of pain in the left side of the back at which time it was thought to be muscle strain. Examination of the abdomen revealed some rigidity throughout the left side. Intravenous pyelogram revealed a stone in the left ureter in the region of the fourth lumbar vertebra with hydronephrosis on that side. Cystoscopic examination was made with the insertion of a ureteral catheter into the left ureter to a point slightly beyond the stone in the ureter and sterile olive oil was injected into the ureter. Shortly after removal of the catheter the patient passed the stone and since that time there has been no further complaint.

From the intravenous pyelogram we could see the complete obstruction of the ureter that caused disturbance in function of this left kidney and by the passing of this stone, possibly shortly after its blockage, the kidney function returned to normal.

Case 7. Male student, aged 20 years, entered the hospital in February 1938 with severe pain in the back and left side of the abdomen. There was some nausea but no vomiting and no pain or burning upon urination. The patient was referred to the hospital for possible appendectomy. Upon questioning it was found that he had had a similar attack in July 1937 but with that attack the pain was more severe in the left side of the back. Examination of the abdomen revealed marked rigidity, slightly more marked on the left side. Urinalysis at the time of admission was normal but another specimen of urine obtained shortly after showed an occasional red blood cell and a faint trace of albumin. The white blood count was 12,000 with 93 per cent polymorphonuclear

neutrophils and nonprotein nitrogen was 25 mgs. per 100 cc. Intravenous pyelogram revealed a stone in the left ureter completely blocking the ureter and showing complete absence of function of the left kidney. Cystoscopy was performed and indigo carmine appeared from the right ureter in three minutes with four plus concentration but did not appear from the other side during the entire examination. The stone was too large to pass through the ureter so it was removed and an uneventful recovery was made. Intravenous pyelogram in March 1938 revealed excellent function of the left kidney but slight constriction in the ureter at the point where the stone was removed.

The magnitude of this stone with so little previous discomfort shows how some of these conditions can progress to an almost destructive lesion before symptoms are severe enough for the patient to be hospitalized. Also, by removing the obstruction the organ returns to normal rapidly. Nevertheless, the patient must remain under observation and should have further urological examinations to prevent the formation of other stones.

ABERRANT RENAL VESSELS

Aberrant renal vessels are a common anomaly occurring in from 20 to 50 per cent of patients. Fortunately, the aberrant vessel only occasionally causes hydronephrosis. There must be some secondary factor causing the back pressure such as an undue mobility of the organ or ptosis. While it is true that every anomaly does not constitute a pathological lesion, it has been shown by modern urological study that any congenital abnormality is potentially a clinico-pathological entity. Anomalies predispose to poor function, urinary stasis, retention and infection. We shall never know how frequently cases of congenital anomalies pass through our hands undiagnosed. I cannot stress enough the importance to the young person of having these diagnoses made. The aberrant vessel with hydronephrosis can usually be diagnosed by the intravenous pyelogram. The picture shows a large hydronephrosis with normal ureters.

REPORT OF CASES

Case 8. Male student, aged 18 years, entered the hospital in September 1937 complaining of pain in the



Fig. 9. Congenital absence of kidney.

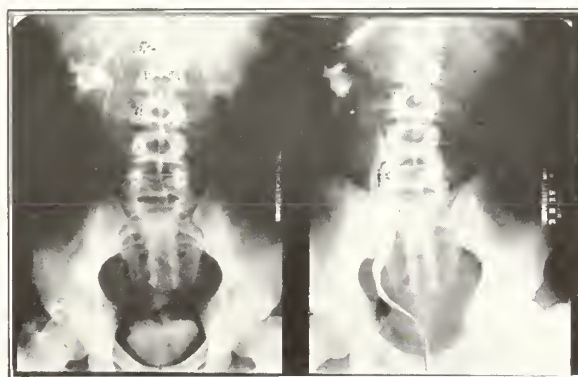


Fig. 10. Double ureters with marked hydronephrosis and hydro-ureter.

lower right chest and right upper quadrant of the abdomen with nausea and vomiting. This attack began several hours before admission to the hospital. Pain was intensified by deep breathing. There were no chills, cough or history of previous cold. The patient had had a similar attack ten days previous to admission. At that time he was seen by a physician and was told that he had pulled a muscle in the right side of the back. The patient is a basketball player and had been engaged in athletics for a number of years and had had these attacks to a mild degree for the last four or five years but always associated them with strain from overexertion. There were no urinary symptoms with these attacks, no frequency or pain or burning upon urination. Examination revealed marked tenderness throughout the right side of the abdomen with some resistance and extreme tenderness in the region of the right kidney. Intravenous pyelogram showed a nonfunctioning right kidney. On cystoscopy a catheter was inserted into the right ureter and passed the entire length into the kidney without meeting very definite obstruction. Retrograde pyelogram revealed marked hydronephrosis with the obstruction to the ureter at the point of the ureteral pelvic junction suggestive of an aberrant vessel. Further cystoscopies made with the catheter in the right kidney region and the administration of indigo carmine revealed no evidence of dye from this kidney, indicating a completely destroyed kidney. The patient was advised to have a nephrectomy. Upon exposing the kidney it was found to be so markedly enlarged that a nephrostomy was done as a first stage and the nephrectomy was done later. The patient has made an uneventful recovery. The function of the other kidney was normal throughout the illness. The patient has gained approximately thirty pounds in weight since the removal of the kidney.

The interesting thing about this case is that if there had been more symptoms the diagnosis could possibly have been made earlier and conservative treatment have saved this kidney.

Other congenital anomalies mentioned in the literature are the agenesis or complete absence of kidney substance on one side and the duplication of ureters. In our group I have found one case of each. There are approximately four hundred and fifty cases of absence of kidney in the records. The duplication of ureters is slightly more common but as mentioned before the important factor in these congenital anomalies is that they are potentially the cause of later destruction of the kidneys. Therefore, an early diagnosis is extremely beneficial to the patient.

Case 9. This patient came to the clinic in February 1937 complaining of marked pain and burning upon urination and severe pain in the right side of the back. Ureteritis with possible stone was suspected. The first roentgenogram revealed a large right kidney but no shadow of the left kidney. The interesting thing about this case was that the urine was normal and the blood counts were normal and the patient had had numerous examinations during the previous year but was always told that there was a muscle strain or some such condition in his back. Cystoscopic examination on the second day after admission revealed absence of the left ureter. Intravenous pyelogram likewise revealed no dye appearing from the left side. Evidence of slight hydronephrosis of the right kidney was revealed by right retrograde pyelogram. Several cystoscopies were made to check on the complete absence of the left ureter. Kidney function test made with a catheter in the right ureter showed no evidence of any urine ap-

pearing in the bladder. No dye was seen to appear at any point. Thus, the possibility of a nonfunctioning left kidney was ruled out and a diagnosis of congenital absence of the kidney and ureter on the left side was made with a hydronephrotic kidney on the right. The right kidney was dilated and treated and the patient is markedly improved.

Because of the possibility of an acid fast organism in this case, specimens of the urine from the right kidney were injected in a guinea pig but there was no evidence of tuberculosis in the animal when it was examined.

Case 10. Male student, aged 19 years, had been in the hospital several times during the previous year with vague abdominal complaints. Twice there was nausea and vomiting associated with the condition but there was no localized point of tenderness. Each time the condition was diagnosed as gastro-enteritis. Urinalysis was normal and the blood count was 8,000 with 60 per cent polymorphonuclear neutrophils. During February 1938 there was marked pain in the back over both kidney regions slightly more marked on the right side. Intravenous pyelogram revealed bilateral hydronephrosis with a double ureter and double pelvis of the left kidney. Left retrograde pyelogram made from cystoscopy revealed this double ureter starting at a point several inches above the ureteral vesicle junction, crossing and causing marked hydro-ureter with hydropelves and showing evidence of marked destruction of the kidney.

In studying the complete records of a group of one hundred students referred to the Urological Service for examination because of vague abdominal symptoms, some very striking observations were made. In grouping the diagnoses the following abnormal conditions were found: Ten cases of ureteral stones; thirty cases of ureteral strictures with varying degrees of resulting hydronephrosis; five cases of ptosis of one kidney; one case of congenital absence of one kidney; one case of tuberculosis of a kidney, and three cases of severe hydronephrosis due to aberrant vessels and double ureters.

In reviewing the complaints of these patients there was a striking absence of any symptoms associated with the genito-urinary system, and remarkable relief was obtained by conservative treatment.

There seemed to be a high percentage of cases in this group with mild hydronephrosis from a slight ureteral stricture, and possibly some would consider these cases within normal limits. However, it has recently been shown by Woodruff that these cases of mild hydronephrosis with slight stricture, during pregnancy, develop a severe hydronephrosis. Therefore, it is of extreme importance to young women to know when they have this mild abnormality so that they may be observed more carefully during their child-bearing period. Then too, these cases of mild hydronephrosis are the ones that develop more severe urological conditions such as stones and infections if they are not treated and kept under observation. Diet and proper medication are important factors in keeping the urine acid and free from infection.

SUMMARY

Since most of these lesions are overlooked it seems that any examination that we can make, es-

pecially one so simple as intravenous pyelogram to determine their presence, is well worth while. It should now be a rule not to allow the so-called exploratory operation until the patient has had the advantage of a careful examination of the urinary tract. I might even go so far as to say that a simple chronically diseased appendix (so diagnosed) should not be removed until the urinary tract has been thoroughly investigated. There should be a closer relationship between the internist, the surgeon and the urologist in the diagnosis and management of patients with obscure abdominal complaints.

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PHYSIOLOGICAL ACTIONS PRODUCING COMMON CLINICAL SYMPTOMS OF HYPOTHYROIDISM

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The thyroid gland regulates the rate of metabolism in all tissues, a fact which indicates the tremendous physiological importance of this gland. Thyroxin is the chemical substance which is manufactured and stored in the thyroid gland. Thyroxin was first discovered by Kendall in 1919. It maintains a normal metabolic equilibrium. Changes in functional capacity are revealed by changes in weight, microscopic appearance, iodine content and blood supply.

The chemical nature of thyroid secretion was studied intensively in 1899 by Oswald who reported that iodine was contained in the colloid and that the colloid was a globulin. He demonstrated that in general the iodine content of the thyroid varied with the amount of visible colloid. Marine and Williams showed that usually the iodine store varied inversely with the degree of active hyperplasia. The globulin content of the thyroid is roughly the same whether the gland is hyperplastic or colloid.

Presumably the thyroid is the only organ capable of elaborating an iodine-containing hormone. Iodine is normally present in the fetal thyroid and iodine fed to pregnant women is quickly stored in the fetal thyroid. Although the synthesis of thyroxin requires about eight hours the storage of iodine is almost instantaneous.

The thyroid principle exerts an influence on the oxidation processes in all the cells of the body and thus produces its physiological effects. The most characteristic physiological effect of thyroxin is that it increases, after a latent period of twelve hours or more, the oxidation in the body of proteins, fats and carbohydrates and also increases the excretion of certain minerals, notably calcium and magnesium.

When proteins are ingested there is a greater rise in the basal metabolic rate than can be accounted

for by the mere food value they represent. Neither fats nor carbohydrates produce so extensive a rise. In normal individuals the ingestion of three eggs and a slice of toast with a little water increases the basal metabolic rate by from 14 to 16 per cent, constitutionally thin people showing a greater increase than obese persons. This specific phenomena or dynamic action is regarded as dependent primarily upon the pituitary gland so that in hypopituitarism the increase in metabolism may be insufficient or even absent, yielding values of from 10 per cent down to 0. Hypothyroidism and some gastro-intestinal disorders produce a similar result. Whether or not the pituitary, gonads or other factors may influence specific dynamic action of foods, the thyroid secretion is necessary for such action. In thyroidectomized people such action disappears completely after about two months but can be restored by giving desiccated thyroid.

That the thyroid gland enlarges at menstrual periods and during pregnancy is well known. Castration causes a slow involution of the thyroid with corresponding reduction in metabolism. It appears that the effect of the thyroid on the gonads and vice versa could be explained as effects mediated through the anterior pituitary. The response of the pituitary to thyroidectomy is not limited to stimulating an increased production of the thyrotropic hormone; that there is an increase in growth hormone and gonadotropic factors as well is common knowledge.

The etiology of thyroid gland disturbances must involve consideration of the availability of thyroxin, the activity of the thyrotropic hormone and the interplay of these two substances as basic factors; such a theory must also include all the conditions that influence the quantity and action of these two substances.

The best known effect of thyroid secretion is the acceleration of metabolism, and the basal metabolic rate has been accepted generally as a useful measure of thyroid activity.

Brazier of England has developed a quick and convenient method for measuring thyroid activity, an electric method which measures the "impedance angle" of the body to an alternating current. The resistance of the body to a direct current is influenced by thyroid disease in such a way as to be of diagnostic value.

The manifold functions of the ductless glands, how they are concerned with the differentiation of tissue, with nutrition, growth and with mental development, both intellectual capacity and personal make-up, also have to be considered.

The power of thyroid secretion to lower blood cholesterol is well known. A blood cholesterol determination permits the differentiation of true myxedema from the other conditions which produce a minus metabolism.

Cholesterol is a monatomic, unsaturated, secondary alcohol. It is a lipid substance and is found in close linkage with fat and protein. Cholesterol is a

characteristic constituent of animal tissue and is isomeric with the sterol phytosterol which is found exclusively in plant tissue. All available evidence indicates that cholesterol is not metabolized. It is found in the blood plasma, in the corpuscles and wherever fat is found. Excretion of excessive quantities occurs through the bile. Cholesterol apparently has the specific function of maintaining the bile salts in solution. After the bile finds its way to the duodenum, the cholesterol is excreted with the feces. It is therefore of great practical value to know the behavior of cholesterol metabolism after a large quantity of this material is ingested.

The normal cholesterol content of whole blood varies between 200 and 230 micromilligram per 100 cc. of blood. Under physiological conditions, the cholesterol content of the blood is fairly constant. Therefore, it is of greater aid for diagnostic value than the basal metabolic rate. A significant rise is noted during the last trimester of pregnancy. The close association between the parturient state and gall stones has been explained by this fact. The deranged carbohydrate metabolism makes impossible the combustion of fats.

The physiological processes of digestion which are so essential to normal beings become somewhat harassed in hypothyroidism, due to lack of cholesterol. The second phase of the physiological process of digestion in the duodenum depends entirely on cholesterol. With normal thyroid secretion, digestion is normal. Digestion is therefore dependent on the uninterrupted flow of parasympathetic impulses through the postganglionic effector neurones, and is essential to the maintenance of tonus in the intestinal musculature. With cholesterol deficient the gastro-intestinal symptoms become definite clinical entities.

The test for blood iodine is also a valuable aid in determining thyroid function. Normally human blood contains 12 micromilligram per 100 cc. of blood. In hypothyroidism, there is a lowered blood iodine index. Iodine content of normal blood is made up of approximately two thirds organic and one third inorganic iodine. Inorganic iodine is pre-eminently an endocrine stimulant and a vital mineral food. In the clinical application of desiccated thyroid therapy one does not seek stimulation but a uniform process of equalization of the thyroid and its subsequent pluriglandular balance. For the proper control of all manifestations encountered in hypothyroidism, desiccated thyroid is preferred to any other form of iodine medication.

The clinical manifestations of hypothyroidism are produced by the interferences in metabolism, the chemical change occurring in the thyroid. This includes not only processes of oxidation and reduction but also synthesis and degradation of a large number of chemical compounds. To remain in a state of well-being, the secretion of the thyroid gland must be maintained at a fairly constant level of production. Various states of disability result in

many individuals because they are unable to maintain an adequate production of thyroxin. The degree of thyroid insufficiency, the rapidity of onset, age and sex are variable which produce such a wide range of clinical pictures that frequently the primary source is overlooked.

The correct diagnosis of hypothyroidism depends on the presence of symptoms and eventual relief of the symptoms that result from such a deficiency. As there are many patients in whom the basal metabolic rate is low, and in the absence of characteristic symptoms, one has to be thoroughly acquainted with the symptoms and signs of hypothyroidism. The relative low or unchanged blood cholesterol as well as the peculiar lack of identifying characteristics may not be impressive but it seems justifiable to keep before one the possibility of a much overlooked cause of many morbid conditions.

The principal clinical groups associated with disturbances of functions of the thyroid gland from the point of insufficiencies are: (1) simple goiter (endemic, epidemic, sporadic), (2) cretinism, (3) myxedema, (4) postoperative.

SIMPLE GOITER

Exophthalmic goiter is not considered a primary thyroid disease. However, the thyroid reactions in exophthalmic goiter and endemic goiter are similar anatomically and are apparently the result of increased pituitary (thyrotropic) activity. In simple goiter the anterior pituitary is usually enlarged; in exophthalmic goiter it is not. In simple goiter the primary stimulation is the result of deficient thyroid secretion; in exophthalmic goiter the pituitary stimulation, if present, is perhaps due to deficiency of some factor related to the gonads and adrenal cortex.

All the evidence indicates that simple goiter, be it endemic, epidemic or sporadic, is due to thyroid failure. It is now universally recognized that adequate supplies of dietary iodine are important. Simple goiter may occur anywhere but shows a strikingly increased incidence in certain regions. In addition to certain mountain regions, a "goiter belt" is found through Michigan, Wisconsin, Minnesota and the Dakotas and along the St. Lawrence and Great Lakes basin.

Endemic goiter can be prevented to a great extent by the use of iodized salt and since it has been used the incidence of enlarged thyroid endemic goiter has been greatly reduced.

CRETINISM

Cretinism is the marked retardation of physical and mental development produced in infants and children by severe thyroid deficiency. Cretinism is not common in "goiter belts" but sporadic cases occur with sufficient frequency to warrant alertness that this condition may be recognized early. There are large numbers of infants and children in "goiter

belts" whose physical and mental conditions are retarded but not sufficiently to produce characteristic symptoms.

Cretinism is frequently congenital and the retardation of development begins at birth but is rarely discovered until the child is found to be slow in development of activities and of normal functions such as teething, walking and talking. Often recognition is delayed because the characteristic appearance does not develop clearly until about the second year. The general disturbances noted are stunted growth and nutrition and the slow development of the bony system. The skin is dry and rough and eczematoid eruptions may appear. The hair is coarse and usually dry and often grows on the face and body. The child assumes a bloated or fat "butter ball" appearance. In severe cases the tongue is thick and protrudes giving an idiotic expression.

The earlier cretinism is treated, the less permanent deficiency of growth will be encountered. Adequate treatment by desiccated thyroid even after a short period of time produces remarkable physical changes. It is well to remember that in cretinism the basal metabolic rate is not a useful diagnostic measure although we find that the blood cholesterol is usually high. In hypothyroidism in children the creatinine excretion may diminish or cease entirely and, with proper administration of thyroid, may again appear in the urine.

MYXEDEMA

Myxedema was so termed because the swelling or edema was formerly thought to be due to deposits of mucin in the tissue, and the term still continues to designate the clinical picture which results from marked deficiency of thyroid function in adults.

The anatomical configurations of myxedema are striking and obviously of great clinical importance. There is usually an increase in weight although there is also underweight in hypothyroidism which in later years turns to overweight. Obesity of thyroid deficiency is well known. In the underweight type of individual the secondary phase of physiological action, the metabolic processes, is increased, whereas, in the obese the metabolic process is also increased but the lipoids are stored instead of oxidized. In the obese person we find fat all over the body including the legs, forearms, wrists, ankles and hands. Fat pads are found back of the neck and above the clavicle. There may develop a cervical collar of fat, oftentimes mistaken for a goiter. The facial lines tend to disappear and the face appears bloated. In the underweight person, the anatomical configurations are quite the reverse.

The metabolic factors are worthy of careful scrutiny and interpretation. Hypometabolism with little or no edema and no clinical evidence of thyroid disease should not be confused with the more classical symptoms of myxedema. In the former the low basal metabolic rate is due to some cause

other than the deficiency of thyroid. The symptom may be from mental depression or malnutrition. The condition may be arthritis; it may be vasomotor rhinitis or anaphylactic reaction or be caused by recurring corneal ulcers, constipation, fatigue or neurasthenia. In all of these conditions, when associated with a low basal metabolic rate, the empirical use of thyroid is justified. These cases should be considered as mild hypothyroidism or as some collaborators have named them, incipient hypothyroidism. Here again we find a tendency to mental retardation, faulty dentition and blood cholesterol within the upper bracket of normal range.

The clinical symptoms characteristically found in myxedema are many. In fact it produces an entire syndrome rather than a dyscrasia. Myxedema is a systemic disease which produces its unique mental disorder with typical symptoms which are promptly relieved by specific therapy with desiccated thyroid. The disease may appear spontaneously as well as being induced in a postoperative period. There is a physiological sluggishness of all functions, both psychic and physical. The patient becomes apathetic, depressed, morbid and soon shows signs of apprehension and suspicion. Probably myxedema is the purest type of systemic disorder which has a clear-cut, specific mental syndrome.

The basal metabolic rate falls below minus 20, and mild symptoms appear such as sensitivity to cold, dryness of skin and absence of sweating. When the basal metabolic rate falls to minus 30 more marked symptoms appear. In myxedema the elevation of blood cholesterol is so consistent that the criteria of the diagnosis is characteristic; even though the metabolic rate be normal it may suggest a true myxedema in those who present symptoms which might be of myxedematous origin and which appear to respond to thyroid medication.

The general symptoms found in myxedema are fatigue, tiredness, weakness, shortness of breath, drowsiness, slow speech, impairment of memory, constipation and obstipation. Edema may be present in the lower extremities, the face and eyelids. There is a tendency toward a dryness of the skin, an inability to stand cold, gastric disturbance, pain and absence of sweating.

The clinical findings in myxedema are weight and fat increase and paleness of the skin as well as dryness and scaliness. Finger nails are brittle and ridged. General cardiovascular signs are slow pulse, small pulse pressure, dilatation of the heart with poor quality of heart sounds, electrocardiographic changes of low voltage especially formed in T waves in the first and second leads. There is usually a lowered basal metabolic rate with an increased blood cholesterol and moderate anemia. Free hydrochloric acid often is absent.

There is a large group of adults who have hypometabolism with little or no edema. In many of

these cases a definite diagnosis may remain questionable as to myxedema or myxedematous type. The majority of these cases give clinical evidence of improvement under thyroid therapy, parallel to that of hypothyroidism and not to the level of the basal metabolic rate.

POSTOPERATIVE HYPOTHYROIDISM

Patients who have had radiation therapy or any operative form of treatment should be suspected of having hypothyroidism, if, after an assumed state of well-being, they, at any time following the operative intervention, again complain of ill health.

The symptoms in this group are many. In adults the limit of assimilation of carbohydrates is raised and the blood sugar is lowered. The muscles lose form and are weakened and muscular activity is decreased. Regeneration of tissues is retarded and anemia is usually produced. Heat production is decreased and the power of heat regulation is impaired and the body temperature is lowered. Consumption of oxygen and excretion of carbon dioxide are both decreased. The sexual functions are depressed. The nervous system is affected with production of dulness and apathy. The skin is dry and the hair texture is changed. The finger nails become brittle. Common symptoms are headache with nervousness and irritability, common visual disturbances, vertigo and nausea with frequent vomiting. These patients also occasionally complain of heat flashes following coldness and clamminess.

COMMENT

Hypothyroidism is one of the commonest forms of endocrine imbalance. Clinically it is easily overlooked and therefore the diagnosis as well as the treatment may alter the symptoms to a stage of confusion. When the physiology of the thyroid is well understood, the clinical phase of the changing physiological factors found in hypothyroidism should lead one easily to its proper diagnosis.

The treatment of hypothyroidism of any type consists merely in the substitution of thyroid extract for the deficient secretion. In children the lowering of metabolism leads to stunted physical, mental and sexual development.

The histopathological changes that occur in hypothyroidism are of more than passing interest. In a simple colloid goiter the acini are abnormally distended with colloid and their lining epithelium is flattened. In the diffuse hyperplastic goiter, the acinar epithelium is columnar, hypertrophic and hyperplastic. The slow changes of the epithelium in the stroma also brings about definite physiological alterations as the basal metabolic rate, the blood cholesterol, chemical changes in all the cells of the body, especially reactions involving iodine, calcium, sodium chloride and phosphorus, inhibition of the sympathetic nervous system and the impairment of catalysis. It influences the functions of the pituitary, the gonads and the pancreas.

The treatment of hypothyroidism is simple if the

patient is observed carefully and frequently until a maintenance dosage is established. There need be no fear of the use of thyroid. The method of choice is to gradually increase the dose of thyroid until mild symptoms of toxemia are produced. The maintenance dose is just below this level. Any form of thyroid may be used. I prefer beef thyroid with .08 per cent iodine. The ordinary prepared gland may give eczematous reactions at times which may be misleading. When the replacement is sufficient to restore the patient to normal, I usually calculate the dosage on the basis of the blood cholesterol and the metabolic rate. It is well to bear in mind that any method of calculation is unreliable. The important point in the treatment of hypothyroidism is to keep patients on maintenance dosage even after the metabolic rate has reached a normal level.

SUMMARY

1. Thyroid activity regulates the rate of metabolism and blood cholesterol in all tissues. The functional capacity of thyroid activity is revealed by changes in weight and physical, mental and sexual development.
2. The thyroid is the only organ capable of elaborating an iodine-containing hormone. It exerts an influence on the oxidation processes in all the cells of the body and thus produces its physiological effects.
3. The etiology of thyroid disturbance must involve consideration of the thyroid at menstrual periods and during pregnancy. The conditions that influence the quantity and action of thyroxin, the activity of the thyrotropic hormone and the interrelationship of these two substances must be considered as basic factors.
4. The relation of blood cholesterol to thyroid function is well known. The basal metabolic rate is not a true index of metabolic processes and I feel that blood cholesterol is more definite and deserves more consideration.
5. Clinical manifestations of hypothyroidism are produced by interferences in metabolism and chemical change occurring in the thyroid. The degree of thyroid insufficiency, the rapidity of onset, age and sex are variable factors which produce a wide range of clinical pictures.
6. The correct diagnosis of hypothyroidism depends on the presence of all symptoms.
7. Simple goiter indicates thyroid failure. It can be prevented largely in "goiter belts" by the use of iodized salt.
8. The general disturbances found in cretinism are stunted growth, nutrition and slow development of the bony system. The features are bloated and often give an idiotic expression.
9. The most obvious and one of the commonest of endocrine disturbances in adult life is myxedema. In incipient and severe forms the characteristic physical, mental, emotional and clinical symptoms are numerous.
10. Patients should be suspected of hypothyroid-

ism if at any time following operative intervention they again complain of ill health.

11. Treatment of hypothyroidism consists merely in substitution of thyroid extract for the deficient secretion.

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IMPROVED TREATMENT OF CERVICITIS BY COPPER IONIZATION

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The purpose of this paper is to introduce in this locality a simple technic for the treatment of cervicitis and its complications which has given satisfactory results.

FREQUENCY OF CERVICITIS

Cervicitis is one of the most frequent gynecological conditions and has long been one of the hardest to cure. Quimby of New York quotes Miller and his associates to the effect that a damaged or diseased cervix is present in 80 per cent of all women who have borne children. Diseased and neglected cervixes often lead to abortion or puerperal infection in subsequent labors. There is little tendency toward further healing of the damaged cervix after eight weeks postpartum; and lacerations, erosions and cervicitis are quickly eradicated by proper treatment during this time. Prevention of pathologic changes in the cervix is a most important field of therapeutic endeavor because adequate attention almost always results in cures and at the same time prevents cancer formation in from 90 to 100 per cent of cases because a chronically diseased cervix bears a direct relationship to malignant conditions in this area.

Menge estimates that 95 per cent of chronic gonorrheal infections in the adult female are located within the cervix. Davis of New York reports the clinical symptoms of pain in the lower abdomen, leukorrhea, menstrual disorders and pain in the back prevailed in from 22 to 49 per cent of the cases in the order named as dominant complaints in cervicitis conditions.

Harold and his associates, of Chicago, mention that curing the chronic cervicitis gave satisfactory

relief of symptoms referable to the urinary tract in approximately two thirds of their patients.

This illustrates the frequency of cervicitis and its complications if we only look for it; and consequently it is probably more often the cause of complaints than we suspect.

Mild cervicitis and erosions are sometimes cleared up by astringent applications or douches but more extensive cases are not cured in this way. It is easy to see why this is true if one understands the anatomy and pathology of the conditions of the cervix.

ANATOMY

The cervical canal is lined by a mucous membrane of columnar epithelium disposed in prominent folds. The glands of the cervix are of racemose type consisting of branching ducts with dilated ends. These glands are lined with columnar epithelial cells which are taller than those of the lining of the cervix. The vaginal surface of the cervix is covered with squamous epithelium. The cervical mucosa takes little or no part in the changes occurring in menstruation or pregnancy and thus there is little or no casting off of the cells which may account for the persistency of infections in the cervical canal instead of in the uterine canal.

In the cervix, as elsewhere, the greatest reaction to infection is in the lymphatic system. The lymphatics of the cervix uteri join with those of the upper part of the vagina and empty into the sacral, hypogastric and superior iliac glands. And likewise, part of the lymph drainage from the tubes, ovaries and fundus drains to the hypogastric glands as does the lymph from the cervix which may be the anatomical explanation for the associated diseased conditions of cervix and adnexa, especially in such virulent infections as gonorrhea. That the infection travels through the lymphatic system is logical because it is not uncommon to find diseased ovaries and tubes in a patient with a diseased cervix.

One authority states that the uterine and cervical lymph may be traced directly from the mucosa through minute funnel-shaped ostia to the myometrium and permeating the entire musculature through an extensive capillary network to the subperitoneal surface whence it drains into the main collecting channels, the course being parallel to the uterine and ovarian blood vessels at the base and top of the broad ligament. It then progresses to the periadnexal lymphatic ramification, reaching the ovaries and tubes. This would explain the extension of infection from the cervix to the adnexa, but I fail to find authorities generally agreeing on this type of anatomical lymph drainage.

PATHOLOGY

The potential diseases of the pelvis that may result directly or indirectly from cervicitis are many because the cervix is a frequent source of focal infection, pelvic infection, metritis, oophoritis, salpingitis, pelvic peritonitis, uteritis, perimetritis,

stricture of the pelvic ureter followed by pyelitis and pyelonephritis, cystitis and sterility.

Acute cervicitis is an acute inflammation of the cervical mucosa and underlying tissue between the external and internal os. Chronic cervicitis is a chronic inflammation of these structures of the cervix usually starting in the lining mucosa but extending deeply into the surrounding tissues by the time it becomes chronic and commonly complicated by erosion, eversion, cyst formation and leukoplakia.

The discharge from a cervicitis irritates the cervical mucosa and causes an erosion, the lining of the cervical canal growing down and covering the area around the external os which is usually covered by the squamous epithelium. Thus, a patch of columnar epithelium with branched glands is formed on the portion of the cervix around the external os usually covered with squamous epithelium. This delicate epithelium is exposed to the acid vaginal discharges which it is unable to withstand long and hence is replaced by squamous epithelium leaving the glands buried in the muscle. The squamous epithelium covers the buried infected glands which continue to excrete mucus, although they no longer have ducts. These glands swell and form nabothian cysts; they burst through the squamous epithelium or form an abscess and ulcerate through and then the whole process is repeated as a vicious circle.

ETIOLOGY

In practically all women with clinical evidence of disease of the cervix we find that various types of streptococci, staphylococci, colon bacilli, gonococci, *Trichomonas vaginalis* and *Spirochaeta pallida* can be obtained from the cervical canal. Child-birth is frequently a predisposing cause of cervicitis especially when there has been a laceration. Leukorrhea is a sign of cervical infection but may be caused by congestion only. Cervicitis in virgins is seen occasionally and the colon bacillus is most frequently found in these cases.

One authority states that the gonococcus is the most frequent cause of cervicitis, but I find that the most common cause of cervicitis seen in the office is a mixed infection and not the gonococcus. I agree that many of these mixed infections may have had a gonococcus infection as a primary infection.

CLASSIFICATION OF CERVICAL CONDITIONS

In the classification of the severity of cervicitis with the erosions and eversions, I have arbitrarily

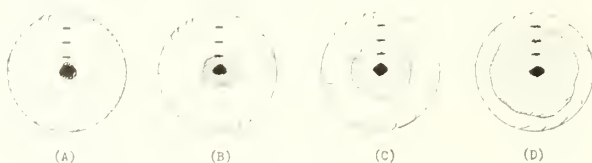


Fig. 1. Classification of the severity of cervicitis with the erosions and eversions. (A) Mild condition. (B) Moderate condition. (C) Marked condition. (D) Severe condition.

classified them as mild, moderate, marked and severe. (See fig. 1.) The cervix as seen through the vaginal speculum is marked off with three imaginary lines or circles equal distances apart forming four imaginary areas on the surface. A mild cervicitis includes a small erosion around the margin of the external os; a moderate condition includes an erosion or eversion covering one fourth of the area of the vaginal portion of the cervix; a marked condition covers one half of the area, and a severe condition covers three fourths of the area. Anything more extensive than that could be termed markedly severe. This manner of classification places in one's mind the extent of erosion or eversion present.

OBJECT OF TREATMENT

The following must be accomplished in the treatment of cervicitis: first, kill the invading organism; second, destroy the infected glandular tissue, and third, provide adequate drainage for the obstructed and infected nabothian glands. The treatment should be conservative, the object being to destroy the least amount of tissue possible to effect a cure and cause the least incapacity to the patient.

CHEMISTRY AND PHYSIOLOGY OF COPPER IONIZATION

Copper is one of the strongest metal antiseptics known. The tissues of the body are tolerant to it as copper is in the blood normally. Ionization is the introduction of the ions (in this case copper ions) into the tissues by means of the galvanic current. Copper ionization causes superficial chemical and electrical coagulation and dehydration of the area of mucosa in contact with the electrode for a depth of from 4 to 8 mm. into the cervical tissue. Copper salts in the form of oxychloride are deposited upon and driven into the infected tissues, glands and lymphatic system that drains the cervix. Thus, copper ions follow the natural tract of infection from the cervix and sterilize the glands and tissues. The forces carrying the copper into the tissues are electrical repulsion and the lymphatic currents and the effect of the copper extends deep into the tissues and lymph channels. The amount of copper driven into the tissues is in direct proportion to the amount of current, the length of time the current is flowing and the size of the electrode used. But, a longer treatment with a relatively small amperage will drive copper ions deeper into the tissues than a short treatment and a high amperage because too high an amperage causes too great a coagulation of the tissues and hinders the current of copper ions.

APPARATUS NEEDED FOR COPPER IONIZATION

The apparatus needed is a simple galvanic machine, a large 8 inch by 12 inch soft pad as an indifferent electrode and several soft copper cervical electrodes of the Tovcy type. (See fig. 2.) These electrodes are 1¼ inches long, which is the usual length of an average cervical canal, and range in size from 12 F to 32 F. One electrode is called a ball

electrode which is to be used on the more extensive erosions and eversions. The rest of the apparatus is the usual vaginal instruments.

TECHNIC

With the patient in the dorsal recumbent position and the moist indifferent electrode placed under the buttocks and connected to the negative pole of the galvanic machine, the cervix is exposed with the vaginal speculum and the cervix wiped dry of secretions. In virgins, I use a large Kelly cystoscopic tube or a virgin speculum. The cervical canal is sounded and dilated if necessary. The largest copper electrode that will enter the cervical canal snugly is introduced up to the internal os. With the special type Tovey electrode there is no danger of going past the internal os because of the small shoulder. (See fig. 3.) The electrode must fit snugly. It is attached to the positive pole of the galvanic machine and the current turned on slowly up to 8 to 20 milliamperes. After twenty minutes of treatment the current is turned off slowly, the poles reversed on the electrodes and current turned up again to 5 to 10 milliamperes until the cervical electrode loosens up and can be removed easily. On inspection one will find the cervical canal lined with light green crystals of copper oxychloride which adhere tightly to the mucosa.

The special ball electrode is used to take care of the erosions or eversions which extend so far on the vaginal portion of the cervix that the regular cervical electrode will not come in contact with them. (See fig. 4.) The diseased tissue can be contacted easily with this ball electrode and it may be used by itself a few times or either before or after the use of the cervical electrodes. The use of the ball electrode will lessen the number of treatments necessary for cure.

The patient will notice a slight tingling sensation from the indifferent pad and a slight cramping pain in the uterus during treatment, but none of these sensations should be severe enough to cause any discomfort to the patient. It is important not to use too high a current because it will coagulate the tissues too much and defeat the object of the treat-

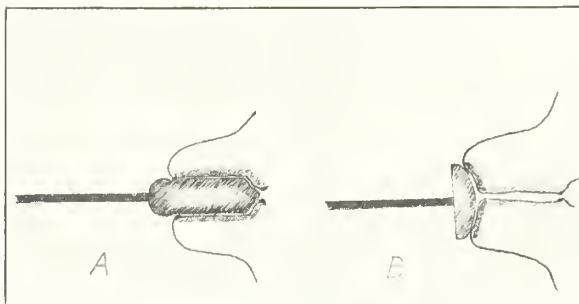


Fig. 3. (A) Diagram showing the intracervical electrode in place for treating cervicitis. (B) Diagram showing the ball electrode in place for erosion or eversion.

ment, i. e., too deep a coagulation will hinder the driving of the copper salts deep into the tissues. And, furthermore, too high a current may coagulate the muscle and tend to form scar tissue which must always be avoided as much as possible. Incidentally, scar tissue formation is absent or at a minimum with this type of treatment if properly performed.

Treatments should be given not oftener than every ten days so the reaction of the tissues may return to normal. Between treatments the cervix may be inspected and the superficial coagulated exfoliating mucosa swabbed away with an antiseptic solution. Every night the patient should use a douche of two quarts of hot water containing acetic acid or lactic acid. The use of beta lactose as vaginal powders to take care of the increased cervical discharge after each treatment, as recommended by Roblee of St. Louis, has been satisfactory.

Usually it takes an average of six treatments for a cure, mild cases taking less and severe cases more.

DISCUSSION

Copper ionization was first introduced more than thirty years ago. The use of electrodes in the uterine cavity instead of the cervix alone, and the employment of too strong a current (from 40 to 60 milliamperes), with the consequent destruction of normal endometrium followed by pain and other disastrous sequelae, brought copper ionization into disrepute and it was given up by the gynecologist. But with the improved Tovey type electrode and the use of small amperage (8 to 20 milliamperes) this treatment is very satisfactory.

It is, of course, contrary to accepted teaching to put an instrument into the cervix in acute cervicitis until the acute symptoms have subsided because of trauma and the danger of the spread of infection incident to the insertion of the instrument. But, when copper ionization is used, copper oxychloride, one of the strongest antiseptic metals, is introduced into the cervix and the electrode is not passed beyond the internal os or beyond the disposition of the copper salts. Superficial coagulation and dehydration of the cervical mucosa occurs and prevents extension of the infection. The cervix is the main focus of infection and it should be sterilized as early as possible.

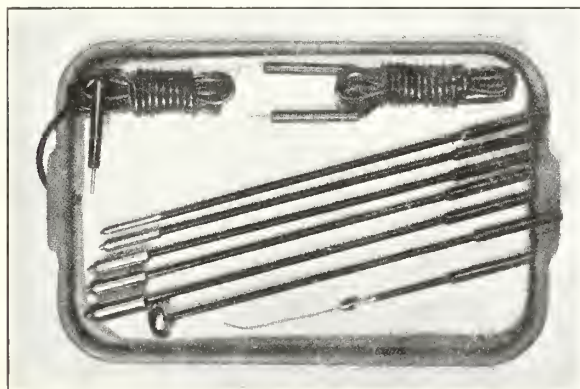


Fig. 2. The Tovey type of copper intracervical and ball electrodes.

When the Sturmdorf, Schroeder or cervical conization operations are indicated as in the severe type of erosions and eversions, copper ionization will sterilize and shrink the tissues and put them in a condition that makes the operation safer and less extensive. After the operation, copper ionization will sterilize any remaining glands or infection in the remaining tissue.

I want to make clear that this type of treatment is only for the type of cervicitis which does not show too extensive erosion or eversion, i. e., the mild, moderate or marked. Naturally the proper treatment for the severe type or a suspected precancerous condition would be excision, preferably the cervical conization method with the Crossen tip. But any other type of cervicitis, acute or chronic, with mild, moderate or marked erosion or eversion will respond to copper ionization with gratifying results.

RESULTS

Forman of Philadelphia reports that with full treatment of eighty-four patients with the copper ionization method, given an average of four treatments per patient, there were seventy-one patients discharged as completely cured, seven patients were improved and six patients were complete failure, having pelvic inflammatory disease. This amounts to 85 per cent cure, 8 per cent improved and 7 per cent failure.

In my small series of thirty cases of cervicitis with its accompanying complications, giving an average of five treatments each, I report twenty-four cured, four improved and two failures; or 80 per cent cured, 13 per cent improved and 7 per cent failure. (See table 1.) These were not selected cases because I was endeavoring to see just what this type of treatment would do in all cervicitis cases. Several of them were prepared for total ex-

Table 1. Results With the Use of Copper Ionization in Thirty Cases

No.	Age	Status	Diagnosis of Cervical Condition	Number of Copper Ionization Treatments	Results
1	39	Primipara	Cervicitis, marked erosion. Following a Sturmdorf operation.	5	Cured
2	17	Virgin	Cervicitis, mild. (Trichomonas vaginalis.)	5	Cured
3	21	Virgin	Cervicitis, moderate erosion. (Trichomonas vaginalis.)	5	Cured
4	52	Multipara	Cervicitis, mild. Following a trachelorrhaphy.	4	Cured
5	23	Primipara	Cervicitis, marked erosion and eversion.	5	Cured
6	29	Multipara	Cervicitis, severe erosion and eversion.	7	Improved. Later did a cervical conization.
7	26	Multipara	Cervicitis, marked erosion and eversion.	7	Cured
8	23	Primipara	Cervicitis, moderate erosion.	5	Cured
9	24	Multipara	Cervicitis, severe erosion and eversion.	8	Improved
10	30	Multipara	Cervicitis, marked erosion.	7	Improved. Later did a cervical conization.
11	23	Nullipara	Acute cervicitis, mild erosion. (G. C.)	3	Cured
12	26	Primipara	Acute cervicitis, marked erosion. (G. C.)	5	Cured
13	25	Multipara	Cervicitis, moderate erosion and eversion.	6	Cured
14	22	Multipara	Cervicitis, marked erosion and eversion.	7	Cured
15	28	Multipara	Cervicitis, mild erosion.	3	Cured
16	31	Multipara	Cervicitis, marked erosion and eversion.	6	Cured
17	29	Multipara	Cervicitis, moderate erosion.	4	Cured
18	18	Nullipara	Cervicitis, moderate erosion.	4	Cured
19	19	Nullipara	Acute cervicitis, mild erosion. (G. C.)	3	Cured
20	21	Primipara	Cervicitis, marked erosion and eversion.	5	Cured
21	48	Multipara	Cervicitis, severe erosion and eversion.	4	Failure
22	36	Virgin	Cervicitis, moderate erosion.	4	Improved
23	31	Multipara	Cervicitis, marked erosion and eversion.	4	Failure. Later did a cervical conization.
24	34	Multipara	Cervicitis, moderate erosion and eversion.	5	Cured
25	23	Virgin	Cervicitis, moderate erosion.	5	Cured
26	24	Primipara	Cervicitis, marked erosion.	6	Cured
27	38	Multipara	Cervicitis, marked erosion.	6	Cured
28	28	Primipara	Cervicitis, marked erosion and eversion.	6	Cured
29	23	Virgin	Cervicitis, moderate erosion.	6	Cured
30	19	Virgin	Cervicitis, mild.	3	Cured

Summary of Results

Averaged 5 treatments per patient with thirty patients	{ Cured 24 or 80 per cent
	{ Improved 4 or 13 per cent
	{ Failure 2 or 7 per cent

cision of the infected tissue by the cervical conization method. My percentage of cures would have been higher if I had confined this treatment to the mild, moderate and marked conditions of the cervix as I have recommended in this paper.

I frequently have found in my patients a feeling of improvement and complete well-being along with improvement or eradication of any associated condition as recurrent cystitis when the infection in the cervix had been cleared up. Frequently I have found that these treatments stimulate the ovarian secretion when it is deficient, i. e., patients suffering with progressive shorter and scantier periods report a longer and more normal period after treatment.

I have had a few patients with cervicitis who were unable to become pregnant and after clearing up the cervicitis became pregnant.

Tovey of New York states that cure is effected in 98 per cent of the cases treated with the copper ionization method. These probably were carefully selected cases.

CONCLUSIONS

Copper ionization treatment of the cervix is harmless, efficient and free from unfortunate results. The cervix returns to normal, shows little or no indication of previous infection and scar tissue is not formed. Hemorrhage and stenosis do not occur. The feeling of well-being experienced by these patients is a revelation to those not familiar with the amount of infection absorbed in these cases.

I want to make clear again that this method of treatment is not a cure for all types of cervicitis and its complications but it will certainly cure the ordinary case of cervicitis with more certainty than will the old method of tampons, local application of astringents, douches and antiseptics to the cervix, and will cure it much quicker. It is also good treatment to use copper ionization in the severe cases to prepare them for the conization or Sturmdorf operation.

The advantages of copper ionization for the treatment of cervicitis, erosions and eversion are that it is a simple office procedure, requires no local or general anesthetic, does not discompose the patient as she continues with her regular activities, causes no scar tissue or contracture of tissues, there is no danger of hemorrhage nor danger with its use during pregnancy. It is a conservative treatment.

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THE ROLE OF THE ELLIS FISCHEL STATE CANCER HOSPITAL IN THE CONTROL OF CANCER

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ST. LOUIS

Only a few weeks after the meeting of the Missouri State Medical Association a year ago Dr. Ellis Fischel met an untimely death while on his way to Jefferson City in the interests of the Cancer Commission. I am sure I voice the feelings of all in expressing our profound sorrow at his death and our sense of obligation to him for what he was able to accomplish for cancer control in the State of Missouri in so short a time. The splendid new State Cancer Hospital, which he succeeded in promoting through the cooperation of the State Medical Association, is now well on its way to completion. It was a fitting tribute to his memory that, at the suggestion of Governor Stark, the Missouri Cancer Commission called the new institution the Ellis Fischel State Cancer Hospital.

In any plan for the state-wide control of a disease that presents as many inherent difficulties of eradication as cancer, there are bound to be differences of opinion. It would be hard to find two persons in exact agreement when there is no precedent to serve as guide. Some might have preferred the subsidizing of cancer patients in other institutions in preference to building a new special cancer hospital. Some might have wanted the hospital near a large population center like St. Louis or Kansas City rather than in the center of the state. These matters are now beside the point, as I see it, and we should forget them. The accomplished fact is that we are to have a hospital for the care of cancer patients located in the City of Columbia, a hospital large enough at present to care for all our indigent cases and it is one that, I believe, will serve as a model in construction and equipment for other states.

In what I say regarding the role of the Ellis Fischel State Cancer Hospital in the program for cancer control, I am not speaking directly for the Cancer Commission but merely as one member of that Commission. Let me first tell you something of the plans for the new building. When shortly before Dr. Fischel's death it seemed possible that PWA funds would be available to enlarge the hospital, provisional plans were hastily drawn for an

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enlargement of the hospital. By the time the formal application for funds had been drawn up it seemed wiser in the opinion of the Commission not to devote too much of the additional money for more beds but rather to improve the general arrangement which had in the original plans been somewhat cramped and to make various additions, such as a laundry, that eventually would make possible a saving in the maintenance charge. During the summer the Commission met with the Council of the Missouri State Medical Association and discussed these proposed changes. The Council had been fearful of a large increase in bed capacity. When the Council was reassured that such was not to be the case, the objections raised by some members were withdrawn. Nothing could have demonstrated better than this conference the desire of the Cancer Commission to work in close cooperation with the organized medical profession of the state.

There was also some discussion of what constituted indigency. The law required that this question be left largely in the hands of the county courts after investigation by local authorities. The Commission has drawn up application forms for admission that will, with reasonable certainty, exclude from the hospital any persons who are able to pay for medical service. It should be remembered, however, that in the treatment of cancer we must employ surgery, roentgen ray or radium, any one of which require a considerable outlay of money. Unreasonable restrictions in the definition of indigency would hence not be to the best interests of the profession or the patient. But I can assure you that every safeguard will be employed to prevent patients able to pay for such surgical or radiation treatment from being admitted to the hospital for free treatment.

The new hospital is located directly on U. S. Highway 40 at the northern limits of Columbia on a commanding site comprising forty acres of ground. These grounds will be attractively landscaped with a driveway leading from the highway to the hospital. The building comprises seven floors and a basement on an area of approximately 200 by 40 feet. The basement will contain engine rooms, kitchen, laundry, cafeteria, autopsy room, patients' lockers and storage space. On the first floor are the offices, record room, social service department, dispensary and roentgen ray therapy rooms. The second, third and fourth floors will be devoted to patients, male and female, white and Negro. The bed capacity of each floor will be approximately twenty-nine. Sixteen patients can be cared for in two end wards and the remainder in two bed and single rooms in the intervening space. Porches have been provided where anemic patients may get a maximum of sunshine and fresh air. The fifth floor will contain living quarters for the resident staff, a conference hall for physicians desiring training in diagnostic methods and a library. The operating rooms will be in one end of the sixth floor and on the other end will be the roentgen ray diagnos-

tic rooms. Above these on the seventh floor will be the laboratories, pathological, chemical, and bacteriological, with smaller rooms available for research studies and animal rooms for the experimental research so important in every cancer institution.

The outstanding features of the hospital may be summarized as: (1) one of the most complete roentgen ray therapy departments to be found in the state together with ample equipment for roentgen ray diagnosis; (2) an amount of radium ample for all needs and possibly exceeding that of any institution in Missouri; (3) facilities for carrying on systematic postgraduate instruction so that physicians through the state may be kept abreast of the latest developments in diagnosis and treatment of cancer; (4) pathological laboratories, research rooms and equipment that will bear comparison to any other cancer hospitals; (5) above all, ample room and facilities for giving unfortunate cancer patients the best surgical treatment and nursing care possible. As stated in the Bill establishing the hospital, "it shall be primarily and principally designed for the care and treatment of indigent persons afflicted with cancer." This emphasis on the care and treatment of indigent cancer patients will be rigidly adhered to by the Cancer Commission.

In large measure the hospital will be the hub in the wheel of cancer control from which will radiate efforts to check the disease throughout the state. For this purpose its location in the geographical center of Missouri has definite advantages. Visits to outlying districts from the hospital and transportation of patients and trips of physicians to the hospital will involve less travel and expense. The development of the highway systems for motor travel makes Columbia a convenient central location.

Every effort will be made to have plans of the hospital for cancer control in Missouri integrate as closely as possible with federal and state health agencies and with private cancer organizations already established in this state. There must be no overlapping or duplication of work. This is most important particularly in the field of public health education. The federal government has taken a definite stand on this point. At the annual meeting of the board of directors of the American Society for the Control of Cancer held last month, which I attended, Dr. Thompson, United States Commissioner of Public Health, stated positively that in the cancer program of the federal government they would scrupulously avoid doing educational work in those states that were already organized by the American Society for the Control of Cancer. In the matter of radium rental to private and state cancer institutions the National Cancer Institute at Washington is aiding greatly and when allotments are finally made we are confident that the Ellis Fischel State Cancer Hospital will receive its share of radium.

In its dealings with the state, the Cancer Com-

mission has been constantly aided by our splendid, fearless governor, Lloyd C. Stark, who was primarily responsible for the passage of the enabling act establishing the hospital and who has repeatedly expressed his deep interest in aiding in the control of cancer in Missouri.

It might interest you to know that the various state social and health agencies of Missouri recently have formed a conference, in which the Cancer Commission has representation, that should militate greatly toward dovetailing the work of different health departments.

Of agencies other than state engaged primarily in the field of cancer control we have, first, the State Committee of the American Society for the Control of Cancer with its Women's Field Army that in April conducts a vigorous campaign of education. Until his death Dr. Fischel directed this work as well as that of the Cancer Commission and the Cancer Committee of the State Medical Association. With the development of the cancer program and the actual building of the hospital, it was clear that this threefold job could not be carried on effectively by any one person. Dr. Louis H. Jorstad, St. Louis, was appointed state chairman of the American Society for the Control of Cancer. Dr. Dudley A. Robnett, Columbia, is Chairman of the Cancer Committee of the State Medical Association, the second agency. These men have cooperated in frequent conferences on our mutual problems. A third agency in the field of cancer is the Barnard Free Skin and Cancer Hospital. As the pioneer in cancer therapy and research in this country, it has since its foundation in 1906 treated thousands of patients, not only from St. Louis and Missouri but from the entire Southwest. It has for many years been compelled to turn away large numbers of patients because of lack of room. By the deed of gift the hospital was limited to the care of indigent patients only. There is the closest cooperation of the State Cancer Commission with Barnard Free Skin and Cancer Hospital and the first of the state tumor clinics established by the Commission, on request of the St. Louis Medical Society, was at this hospital. There is no question of competition of these agencies with each other; rather a collaboration so that each will have its particular field, its particular function in the efforts to control cancer.

The four cardinal points in a cancer control program are: (1) The public must be informed. (2) The doctor must be trained. (3) The patient must be cared for. (4) Research for better methods of treatment must be undertaken. Let us consider each of these four points in turn.

1. *The Public Must Be Informed.*—The first suggestion for a nation-wide effort to educate the public concerning cancer was made by me at the International Congress of Arts and Sciences held at the St. Louis World's Fair in 1904. The following year the American Medical Association accepted this idea and for a time carried on this educational

work. Lack of funds retarded its efforts and in 1913 the American Society for the Control of Cancer took over this work and as a joint medical and lay body has since then successfully organized this education. During these thirty-five years I have often been discouraged. People as a whole do not want to know the disagreeable facts of life. Many of them adopt a fatalistic viewpoint. Even when the early symptoms are known to them, some will procrastinate and fail to go to their physician until it is too late. Yet with each decade we note some increase in the number of early cases that come to us. Ignorance, however, is still widespread, especially in the rural communities.

The survey made by Mr. Bertram Black for the Cancer Commission, concerning which Dr. Cole will report, gives ample evidence how widespread quackery is in this state. Many years ago the Missouri State Medical Association under the leadership of Dr. Frank J. Lutz drove much of the advertisement of quacks from the pages of our leading newspapers. But quackery still survived and now gains notoriety through the radio. Cancer pastes and nostrums are still widely employed. Occasionally we find a sinner who repents, as illustrated in the following story of a cancer quack who himself developed a cancer. The story comes through Miss Cockerill, the social worker of the Cancer Commission at Fulton.

"An elderly man, who had dispensed plasters to cancer patients for many years, was persuaded by his physician to seek adequate treatment for a cancer on his hand. He came quite reluctantly and almost decided to return home after he learned that an operation would be necessary. However, his relatives were successful in persuading him to stay. He proved to be an excellent patient and when he became better acquainted with the doctors told them of his own activities. The seriousness and consequences of his methods were patiently and carefully discussed with him by those in charge of his case. When he left the hospital, he was loudly proclaiming the benefit he had derived and announcing his intention of discontinuing his own activities." If this patient keeps his promise, it is difficult to estimate just what his experience in Cancer Hospital No. 1 may mean to other cancer sufferers in his community.

I will not discuss in detail the various methods employed to instruct people regarding the early symptoms and proper treatment of cancer. Lectures, distribution of leaflets, articles in the newspapers and journals, radio talks, all help to spread the essential information. Better than any of these is the person to person, or grapevine method as it is usually called in rural Missouri, the doctor to his patient and, above all, the cured cancer patient to his friends. People still hesitate to acknowledge they have had such a disease. In the East groups of women have formed "cured cancer" clubs that meet and help to organize the educational work of the cancer control society. Such methods will do

much to overcome the inherent pessimism that still blocks much of this educational work.

2. *The Doctor Must Be Trained.*—The group of young men, now being graduated from medical schools, should certainly have the necessary information regarding cancer. But let us bear in mind that the majority of practicing physicians studied at a time when such training was not given. Opportunity must be supplied for these men to keep abreast of better methods of diagnosis and treatment and to know the importance of recognizing the disease in its early stages. Facilities for microscopic examination of biopsy specimens must be supplied. Where payment for such an examination would be a hardship, physicians should, as in New York, have access to the laboratory of a state cancer hospital for such a diagnosis. Furthermore, the Ellis Fischel State Cancer Hospital will doubtless hold clinics from time to time to instruct physicians in groups regarding the diagnosis of early cancer. In addition to such hospital teaching, we hope to establish free diagnostic clinics to be conducted throughout the state by members of the active and consulting staff of the hospital at the invitation of county medical societies or local groups of physicians desiring instruction. Such a program will, of course, be arranged only after conference with the Committee on Cancer of the State Medical Association.

Tumor diagnostic clinics, which thus far have been established only in Kansas City and St. Louis, should be organized in half a dozen or more other places such as Springfield, Joplin, St. Joseph, Hannibal, Sedalia and Cape Girardeau. The Cancer Commission is empowered to supply the services of a follow-up worker for these clinics but it is up to the physicians of these communities with the help of a few of their wealthier patients to organize such a diagnostic clinic. Since treatment at these clinics is not contemplated, the expense of establishing them should be minimal. These local diagnostic clinics should aid a great deal in making the general practitioners more cancer-minded and better able to make an early diagnosis.

3. *The Patient Must Be Cared For.*—In the two largest cities of the state, St. Louis and Kansas City, ample facilities are provided for the care of indigent cancer patients. For the remainder of the state this will be true only after the completion of the cancer hospital at Columbia. With the constant increase in the number of cancer patients, only in part due to better diagnostic methods, we doubt whether these facilities will suffice for the future. Time will tell. For the present, in view of the patients already being treated in the cancer hospital divisions established by the Cancer Commission at Fulton and St. Joseph, we expect to have over 70 per cent occupancy when the new hospital opens. While we have thus supplied facilities for the indigent cancer patients of Missouri, and while private hospitals can amply supply the needs of the well-to-do and upper middle class, there still remains a

large group of the lower middle class who can and should pay for medical services but who cannot afford all the unusual expenses entailed in the treatment of cancer. Every program for the control of cancer must keep in mind this large group of persons. They are not, however, the responsibility of the state hospital. Some plan should be worked out by the medical profession of Missouri to provide treatment for this group which will not entail too great a financial burden.

4. *Research for Better Methods of Treatment Must Be Undertaken.*—One of the functions of the new state cancer hospital as provided in the bill is to undertake "such scientific research as will promote the welfare of indigent patients." With the excellent laboratories provided for such studies in our hospital it is hoped that sufficient funds will be available from the state and other sources to enable the specially trained staff to carry on important investigations that will add materially to our knowledge of cancer and its treatment. The recently enlarged research department of Barnard Free Skin and Cancer Hospital and the work being carried on in the laboratories of our medical schools place Missouri in the position of being one of the few states in which cancer research is being undertaken on a large scale.

Such in brief is the role of the Ellis Fischel State Cancer Hospital in cancer control. How can the Missouri State Medical Association help to carry out these plans? I should say, first, by supporting the efforts of the Cancer Commission to maintain the highest standards of efficiency in management and personnel at the hospital; second, by extending to a wider scale the present measures for systematic instruction of general practitioners throughout the state regarding cancer; third, by stimulating the formation of diagnostic tumor clinics in the larger cities, having a population of 15,000 or more and strategically located, so that patients from neighboring counties may obtain advice and, if indigent, may be referred by their counties to the state hospital for treatment.

The Cancer Commission, I think, feels that the conferences with the Council and Cancer Committee of the Missouri State Medical Association were of mutual benefit and welcomes their continuance from time to time as problems for the control of cancer may arise.

In conclusion, may I say that the eyes of the country are watching closely the outcome of our plans? We have had inquiries from several states, Texas, Illinois, Oklahoma, Nebraska, and even from other countries, Rumania and New Zealand. In addition, the National Cancer Institute has from time to time referred people to the Missouri Cancer Commission for information. We feel that this shows they are interested in what we are doing. The federal government is anxious to outline as soon as possible a program for cancer control that will serve as a model for other states to follow. We hope, therefore, with your help to establish an in-

stitution and formulate an organization that will be acceptable and will redound to the credit of Missouri.

701 Beaumont Building.

THE INCIDENCE AND MORTALITY OF ACUTE POISONINGS

VINCENT E. FRIEDEWALD, M.D.

ST. LOUIS

During the last five years a total of 1,029 cases of acute poisoning have been treated at the St. Louis City Hospital. Cases of acute alcohol intoxication and poisonings resulting from foods or drug therapy (arsenical dermatitis) were not included in the series. Only cases that were alive on arrival at the hospital were included in the series. Poison cases that die before reaching the hospital are not admitted but are taken to the coroner's morgue. This report, therefore, is of clinical significance since the practitioner is interested only in live patients.

Before the patients who ingest poison are brought to the hospital they invariably have been given household emetics such as milk, eggs or mustard. This usually leaves the physician without an accurate means of diagnosis. He must rely upon history taking, which is unreliable, and the clinical condition of the patient in order to institute therapy. Many of our poison cases take little or no poison at all but the problem as to what the eventual outcome will be still arises.

There were sixty-seven deaths in our series of 1,029 cases giving a mortality rate of 6.5 per cent. Lysol, barbiturates, iodine, illuminating gas and bichloride of mercury accounted for over half of all the poisonings.

The Coroner's³ report (table 1) for the same period of time (1933-1938) shows that there were

Table 1. Deaths From Acute Poisoning Recorded in Coroner's Office During Years 1933-1937 (Inclusive)

Type	1933	1934	1935	1936	1937
Illuminating gas	15	17	6	13	10
Lysol	10	8	14	8	18
Phenol	10	7	7	13	11
Potassium cyanide	5	2	5	5	7
Carbon monoxide	3	6	1	6	4
Bichloride of mercury	1	4	5	3	4
Arsenic	0	3	0	1	1
Barbiturates	3	0	3	0	3
Other poisonings	6	17	11	12	16
Unknown poisonings	0	2	3	2	0
Sodium fluoride	2	0	2	3	2
Total	55	66	57	66	76

320 deaths from acute poisoning in the City of St. Louis.

Table 2 shows that approximately twice as many females attempted suicide by poisoning as males. Of all the poisonings 80 per cent were suicidal in nature and the average age, taken as a group, was 31 years.

Lysol was the most frequent poison used during

From the Medical Service of City Hospital, St. Louis.

the five year period. Figure 1, however, indicates that barbiturates are more commonly used at the present time. There were 152 lysol poisonings with nineteen deaths giving a mortality rate of 12.5 per cent. Of these cases, 146 were attempted suicides and females were more than twice as frequent as males in the series.

Barbiturates were second in the series with 117 individuals using this drug as an unsuccessful means of escape from life. Only three deaths were recorded making a mortality rate of but 2.5 per cent. This figure is interesting because the barbiturates will probably be the most frequent type of poison used within the next few years (fig. 1). It can be seen from the coroner's report (table 1) that although the number of barbiturate poisonings increased, the deaths from this type of poisoning did not increase. Females were twice as frequent as males in the series and only seventeen of the 117 were accidental.

Iodine and illuminating gas together accounted for 216 poisonings with no deaths. Again the vast majority (90 per cent) were suicidal and females were twice as frequent as males.

There were ninety-eight bichloride of mercury poisonings with seven deaths making a mortality rate of 7.1 per cent. Of the group, eighty-seven attempted suicide and females ingested this poison almost three times as frequently as males.

Potassium permanganate is another type of poisoning which should cause little alarm. There were fifty-one cases of potassium permanganate poisoning with no deaths. Females were almost five times as frequent as males in this group. Iodine and potassium permanganate are taken at a relatively young age in comparison with adult poisoning cases. The average age of the group taking iodine is 24 years and potassium permanganate, 25 years.

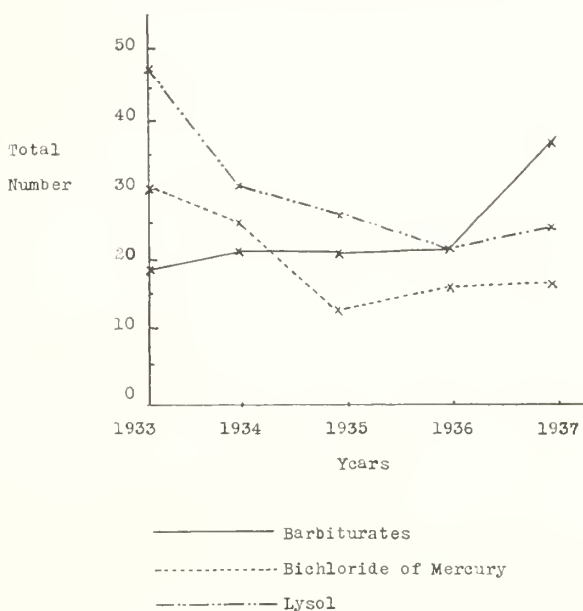


Fig. 1. Lysol, barbiturate and bichloride of mercury poisoning during the years 1933 to 1937 inclusive.

Table 2. *Acute Poisonings From 1933-1937 (Inclusive) at St. Louis City Hospital*

Type	Total Number	Deaths	Per Cent Mortality	Number Attempted Suicides	Females	Males	Average Age
Lysol	152	19	12.5	146	105	47	32 (1.75)
Barbiturates	117	3	2.5	100	81	36	31 (1.78)
Iodine	116	0	0	105	82	34	24 (1.55)
Illuminating gas	100	0	0	91	61	39	39 (1.84)
Bichloride of mercury	98	7	7.1	87	70	28	32 (2.68)
Potassium permanganate	51	0	0	44	42	9	25 (2.44)
Carbon monoxide (exhaust gas)	50	2	4	19	10	40	32 (2.65)
Phenol	44	8	18.1	39	26	18	36 (1.85)
Kerosene	29	0	0	1	14	15	3 (1.20)
Alkalies	28	3	10.7	18	14	14	20 (1.64)
Acids	16	3	18.7	13	6	10	38 (1.81)
Arsenic	15	3	20	14	9	6	34 (1.69)
Sodium fluoride	10	2	20	6	7	3	25 (13.44)
Insect powder	10	2	20	7	6	4	29 (1.67)
Potassium cyanide	6	2	33.3	6	1	5	40 (29.65)
Formaldehyde	4	2	50	4	1	3	57 (36.71)
Miscellaneous	183	11	6	125	96	87	29 (1.80)
Total	1029	67	6.5	825	631	398	31 (1.85)

Marriott¹ in 1936 stated that "In Great Britain and the U. S. of America, carbon monoxide poisoning outnumbers all the other poisons combined as a cause of fatal acute poisoning." This certainly is not the case among admissions at the St. Louis City Hospital. There were fifty cases of carbon monoxide (exhaust gas) poisoning with only two deaths, making a mortality rate of 4 per cent. If illuminating gas and carbon monoxide poisonings are considered together the mortality rate is only 1.3 per cent. The male sex predominated in this group, having four times as many males as females, and only 38 per cent of this type were suicidal in nature.

There were forty-four phenol poisonings with eight deaths, a mortality rate of 18.1 per cent. Phenol and lysol together accounted for 40 per cent of all the poison deaths in the five year period.

Arsenic, potassium cyanide, acids, alkalies, insect powder, formaldehyde and sodium fluoride have relatively high mortality rates as can be seen from table 2. They are not commonly taken, however, and raise the general mortality rate of poisonings only slightly.

ACUTE POISONINGS IN CHILDREN

During the five year period (1933-1938) there were ninety-eight children (1 to 14 years) admitted to the hospital as acute poisoning cases. Only four deaths occurred in this group.

The vast majority of poisonings in children occur during the second year of life as can be seen from figure 2. The reason for this is that the child has

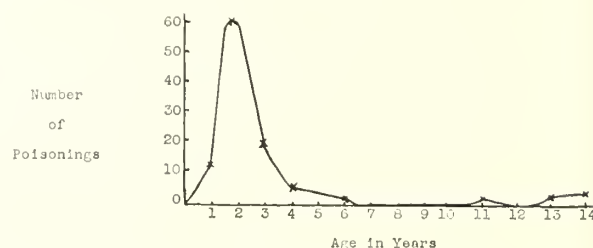


Fig. 2. Age incidence of acute poisonings in children between 1 and 14 years of age.

just recently learned to walk and drugs lying about the house are included in the many things that find their way into the child's mouth during the course of a day.

Table 3 enumerates the variety of drugs that children take accidentally. Kerosene is a common article in the homes of the poorer class of people who makes up the majority of the hospital admissions. This accounts for the large number (almost one third) of kerosene poisonings occurring in children in our series.

Aikman² in 1934 pointed out that there are more than 500 deaths from acute poisonings (gas excepted) occurring yearly in the United States in children under 5 years of age. No estimate of the total number of children ingesting poison was given. If only 4 per cent of poisonings in children are fatal, this suggests a tremendous number of accidental poisonings occurring in the United States each year. Aikman also stated that strychnine causes more deaths in children than any other poison. This is not true of our hospital admissions;

Table 3. *Acute Poisonings Occurring in Children (1 to 14 Years) From 1933-1938 (Inclusive)*

Type	Number	Deaths
Kerosene	28	0
Alkalies (lye)	9	0
Benzene	4	2
Bichloride of mercury	4	0
Iodine	4	0
Turpentine	4	0
Potassium permanganate	4	0
Lysol	4	0
Gasoline	3	0
Arsenic	2	0
Carbon monoxide	2	0
Illuminating gas	2	0
Luminal	2	1
Hydrochloric acid	2	0
Santonin	2	0
Bleaching powder	2	0
Atropine	2	0
Phenol	2	1
Unknown poison	2	0
Shoe cleaner	1	0
Ammonia water	1	0
Cascara sagrada	1	0
Ergot	1	0
Paregoric	1	0
Chlorine	1	0
Furniture polish	1	0
Rat poison	1	0
Strychnine	1	0
Methylene blue	1	0
Colloidal silver	1	0
Aluminum	1	0
Sodium fluoride	1	0
Insect powder	1	0
Total	98	4

in fact, there was only one case in which a strychnine compound was taken.

There were 151 cases classed in the miscellaneous group. These included the undetermined poisonings and the unusual poisons such as shoe polish, liniments and furniture polish.

Reasons for suicidal actions are many. The more common reasons are domestic troubles, acute alcoholism, disease and financial worries.

There was no noticeable difference between the number of married and unmarried individuals who attempted suicide.

A few patients were readmitted to the hospital during the last five years on subsequent occasions for unsuccessful suicide poisoning. Since the vast majority, however, had only one admission during the five year period, and although 80 per cent stated that they tried to kill themselves, I doubt whether their attempt was really sincere.

TREATMENT

Our treatment of patients who have ingested poisons has been primarily that of evacuating the stomach of its contents as soon as possible. If the type of poison ingested was known, an antidote was used. If this was not known, simple lavage was then carried out. Elimination of the poison from the gastro-intestinal tract was obtained by catharsis, usually magnesium sulphate. Supportive treatment constituted the remainder of the procedure.

Our treatment of gaseous poisons consisted of oxygen (95 per cent) and carbon dioxide (5 per cent) inhalations and supportive treatment such as transfusions and stimulants.

Many of our poison cases required sedation on

admission to the hospital because of the element of hysteria that was present.

SUMMARY

1. There were 1,029 acute poisoning cases within a five year period (1933-1938) cared for at St. Louis City Hospital with a mortality rate of 6.5 per cent.

2. Most common types of poisons used, in order of frequency, were lysol, barbiturates, iodine, illuminating gas and bichloride of mercury.

3. The average age of the attempted suicides was 31 years.

4. Unmarried individuals attempted suicide as frequently as married.

5. Mortality rate of children ingesting poisons in general is very low.

6. Readmission of poison cases to hospital for subsequent poisonings is not common.

7. Approximately twice as many females as males attempt suicide by poisoning.

St. Louis City Hospital.

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TROCHANTERIC FRACTURES OF THE FEMUR

NEW TYPE OF AMBULATORY CAST FOR TREATMENT

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ST. LOUIS

The management of a patient with an intertrochanteric fracture is often a difficult problem. A large proportion of such fractures occur in aged individuals whose ebbing endurance is lessened still further by the trauma and by immobilization which to be adequate usually confines the patient to bed for from eight to ten weeks. Such treatment apparently induces hypostatic congestion particularly in the lungs and serves as the precursor to pneumonia which is responsible for a large percentage of the deaths.

We did not realize how high the death rate was until a review of records at the City Hospital showed that the mortality varied from 35 to 40 per cent each year. The following statistics were compiled from records of the St. Louis City Hospital.

Table 1. *Pneumonia Patients*

Date	No. of Cases	Average Age	Mortality	Average Age of Patients Who Died
1931-1936	214	66.6	38.7 per cent	73.8
1937	88	73.0	40.8 per cent	75.2

The causes of death were: pneumonia, 39 per cent; chronic nephritis with uremia, 19 per cent; cardiac failure, 14 per cent; pulmonary embolus, 9 per cent, and miscellaneous, 19 per cent.

Thirty-eight per cent of the deaths occurred during the first week of illness. Most of these patients had sustained other injuries or had some preexisting organic disease which together with the accompanying shock hastened their deaths.

The treatment of the bone lesion was not considered difficult and all the patients that survived had bony union. In past years these cases have been treated by suspension and traction in the Hodgen splint or by reduction and application of a double spica body cast. The former treatment has been preferred in the St. Louis City Hospital as nursing care is more easily managed, the patient is allowed more freedom in bed and when decubitus ulcers occur they can be recognized and treated earlier. There are many disadvantages to this method however. The splint requires frequent adjustment and attendants often move the bed and fail to replace it in its original position, thus distorting the correct lines of force. The patient is necessarily confined on his back although allowed to sit up part way, and decubitus ulcers do occur occasionally over the sacrum.

During 1937, of eighty-eight cases seventy-two were treated in the Hodgen splint. The remaining sixteen were treated in single spica "skin" casts which were applied a few days after treatment in a Hodgen splint to allow subsidence of any swelling that might occur. In either method the treatment was discontinued after from eight to ten weeks and full weight bearing permitted at from four to six months.

The application of an ambulatory type of cast was demonstrated at St. Louis City Hospital by Dr. Lelio Xeno of Argentina, which offered a new method of treatment. It has the advantage of allowing the patient to be up on crutches within a week after the injury and decreases the chances of complications that may occur when the patient is kept in bed in traction. This type of cast is applied in the following manner.

After the fracture is reduced, which is usually not difficult, with the leg in traction and abduction, the position is checked with the fluoroscope or a portable roentgen ray. Plasters (7 inches wide and 5 yards long) are applied directly to the skin from the xyphoid process of the sternum to the lower end of the thigh, the only padding being rectangular pieces over the crests of the ilia and sacrum. After four or five plasters are applied, the cast is molded to the crests of the ilia by wrapping ordinary gauze bandage tightly and firmly over the plaster, allowing a few minutes for drying and then removing the bandage. A posterior slab is carefully made, free from wrinkles, which reaches from the thigh over the posterior aspect of the leg and ankle about an inch beyond the toes. This is tailored to cling smoothly around the ankle and is held in place with a roll of plaster in such a way that the tucks of the plaster fall on the slab. A piece of felt 2 inches square is placed over the knee to allow some slight motion of the patella by the quadriceps mus-

cle. The cast is then reinforced with a plaster slab over the front of the hip joint. Such a cast usually requires from seven to ten plasters.

The patient is turned on his unaffected side, with an assistant elevating the leg, and the plaster over the upper medial aspect of the thigh is cut out. A layer of felt is cut to fit where the plaster is removed and a plaster slab is carefully molded against the tuberosity of the ischium as a shelf and held in place with a few short strips of plaster bandage. A piece of felt one-half inch thick is applied over the heel and over the base of the phalanges and held in place with a small roll of plaster. This allows a spongy surface on which the patient may walk.

The patient is allowed up on crutches as soon as the plaster is dry. The cast is not heavy nor too cumbersome to be borne without difficulty providing the patient is not debilitated. The weight is supported by the tuberosity of the ischium and the cast is in effect similar to a Thomas walking caliper. Care must be taken in applying the plaster without wrinkles to prevent the occurrence of pressure sores. The plaster must be accurately molded to the bony prominences, particularly the crests and spines of the ilia and the tuberosity of the ischium. At St. Louis City Hospital this cast is called the "Xeno shelf cast." (See fig. 1.)

Table 2 compares the two methods of treatment used in 1937.

Table 2. Comparison of Methods

Method	Total Cases	Average Age	Mortality	Average Number of Hospital Days of Patients Who Survived
Hodgen splint	72	75	47 per cent (34 deaths)	84.7
Xeno shelf cast	16	68	13 per cent (2 deaths)	47.6

The average number of hospital days was one third less in cases treated in the Xeno shelf cast.

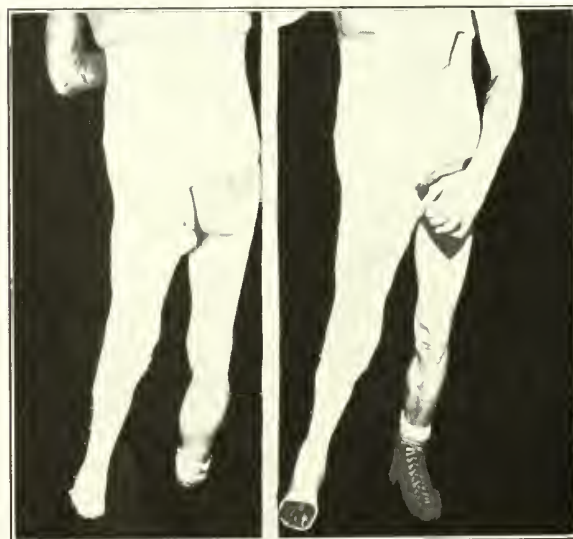


Fig. 1. Ambulatory cast with "Xeno Shelf."

More cases could have been treated in this manner but the method was on trial and it is admitted that this treatment was reserved for the more vigorous cases. Thus the mortality statistics which show a marked decrease must be interpreted accordingly and no definite conclusion can be drawn from this small series.

The idea of ambulatory body spica casts is not new as Boehler of Vienna has described padded spica casts which he fits with a walking iron. The Xeno shelf cast is better tailored to fit the patient and in the experience at St. Louis City Hospital has been more satisfactory.

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ROCKY MOUNTAIN SPOTTED FEVER AND TYPHUS FEVER OCCURRING IN MISSOURI

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CAPE GIRARDEAU, MO.

REPORT OF CASES

The purpose of this paper is to present a brief discussion of Rocky Mountain spotted fever and endemic typhus fever occurring in children and the incidence of these diseases in Missouri. A case of each disease is presented.

The two diseases are so closely related that they will be discussed together for the most part but the differential points distinguishing between the diseases will be pointed out respectively. Both diseases belong to the typhus-like group in which Ricketts in 1906 first observed small, intracellular, coccoid or bacillary bodies in the tissues of infected animals and arthropods. This group since then has been given the generic name "Rickettsia."

Both are acute, specific, infectious but non-contagious diseases and are endemic in form in this section of the country. It has now been shown that typhus fever shows no predilection toward the lower strata of society. It is wide-spread among rats and usually is transmitted to man through the rat flea. If transmitted by the louse the virulence is increased and the more severe epidemic form of typhus fever is produced. Rocky Mountain spotted fever is a tick-born infection, being conveyed to man from infected animals in this part of the country by the dog tick. It is transmitted by the rabbit tick from rabbit to rabbit but not to man. By acting as host to a dog tick the rabbit may indirectly transmit it.

The seasonal prevalence of the two diseases is different. Endemic typhus fever occurs usually in the late summer and fall while Rocky Mountain spotted fever occurs usually in the late spring and summer months. All ages and both sexes are equally susceptible. Children, however, withstand the infection much better and therefore present a much lower mortality rate, this being less

than 2 per cent. The use of vaccine when the organism is of low virulence has reduced the mortality rate to zero.

Rocky Mountain spotted fever affects the vascular system. Spongiosis with thrombonecrosis is the specific lesion as contrasted to the endothelial proliferation followed by thrombosis that occurs in endemic typhus fever. Splenic enlargement, bronchopneumonia and meningeal congestion are present in both diseases.

In Rocky Mountain spotted fever the incubation period is from two to twelve days with an average period of from four to seven days. Sometimes there are one or two days of prodromal malaise, anorexia and aching, but in the majority of cases the onset is sudden with a chill, rapid rise in temperature, severe headache and prostration. The appetite is lost and constipation becomes prominent. The fever remains high for from seven to ten days. Some cases present a typhoid like temperature at onset and others maintain a constant high fever until lysis begins. Morning remissions are the rule. Lysis is fairly rapid in most cases, occurring at the end of the second week. On from the third to the fifth day an eruption, petechial at first, appears on the wrists and ankles and spreads gradually to the arms, legs and trunk and finally to the palms of the hands and soles of the feet and not infrequently to the face. By this time the rash is macular and gradually becomes more confluent. Stupor, mental irritability and even delirium are encountered frequently.

In endemic typhus fever a few clinical manifestations are different. The onset is almost identical. The rash occurs a little later, usually about the fifth day and sometimes as late as the seventh, starts first on the chest and upper abdomen, is more macular at the onset rather than petechial and spreads to the shoulders, back, lower arms and thighs but rarely to the palms of the hands, soles of the feet or to the face. In severe cases, however, this does occur. The pulse is slower, seldom more than 100. In the severe cases diarrhea may occur.

The physical symptoms are quite the same for both diseases. The expression is one of anxiety and anticipation brought about by the involvement of the nervous system. Hyperesthesia and severe soreness of the muscles and joints are marked in most cases. There is usually a slight nonproductive cough at the onset. Meningism is a frequent finding. Kernigs sign is positive in about 20 per cent of cases according to Rumreich. If the patient is seen late in the disease delirium may be present. The nervous manifestations are usually more marked in Rocky Mountain spotted fever than in endemic typhus fever. This probably partially accounts for the longer period of convalescence in Rocky Mountain spotted fever.

Complications are not frequent in children. Bronchopneumonia, intestinal hemorrhage and occasionally gangrene and necrosis of the skin, scro-

tum and prepuce are sometimes encountered, however.

The urine is scanty and light colored with albumin, pus cells and casts not uncommon. The white blood count may be normal or there may be even a slight leukopenia at the onset. During the second week a leukocytosis, up to 10,000 or 11,000, usually appears with a relative mononucleosis. The most important laboratory finding as a diagnostic aid in confirming the diagnosis is the agglutination reaction with cultures of *Proteus* X19, the Weil-Felix reaction. Within certain limits this reaction is considered specific for both Rocky Mountain spotted fever and endemic typhus fever. To differentiate between the two diseases the cross immunity and neutralization tests must be made.

The neutralization test is done by mixing convalescent serum with a known virus and inoculating a guinea pig with the mixture. If the pig does not develop the disease the serum and virus were of the same strain. The cross immunity test consists of inoculating animals who have recovered from the specific disease with blood from the patient and if the disease does not develop this strain is then indicated.

General treatment is purely symptomatic. Antipyretics should be avoided and liquids given freely. If the pulse becomes weak and thready because of failure of the heart muscle, digitalis is indicated. No specific drug has been found and no serum has been made, as yet, to combat this disease.

Prevention of the diseases consists in measures against the transmitting agents, the tick and the flea. The virus is not transmitted from the tick to its host for several hours after it begins to feed because fresh blood is necessary to activate the dormant virus.

A vaccine has been prepared by Spencer and Parker from the phenolized tissues of infected ticks and standardized, thus far only arbitrarily. The vaccine is given in two subcutaneous injections of 1 cc. each for children. Parker made an analysis after ten years and found the vaccine to be of definite value.

REPORT OF CASES

ROCKY MOUNTAIN SPOTTED FEVER

Case 1. F. W., white female child aged 11 years was admitted to the hospital on July 17, 1938. Ten days previous to admission the child became suddenly ill with a chill followed by temperature of 104 F. She complained of severe headache, generalized aching and became very irritable. The patient developed a sore throat on the following day and complained of severe abdominal pain. Body pains became so severe that the patient would not allow anyone to move or touch her without her screaming. Severe prostration with rapid pulse developed. Rash started on the fourth day on the extremities and spread rapidly to all parts of the body.

Physical examination revealed an acutely ill child with an expression of anxiety and fear, with jaundice of the sclera and a diffuse reddish-pink maculopapular rash over the entire body and extremities including the palms of the hands, soles of the feet and the face.

There was a generalized spasticity of the entire body with some neck rigidity. Determination of Kernig's sign caused severe pain.

On the eleventh day fever began to fall with lysis and was normal on the seventeenth day. Nervous manifestations did not leave until the twenty-third day. Recovery was uneventful.

Laboratory: Urine revealed albumin, pus cells and bacteria. White blood count was 7,300 on the tenth day and 7,600 on the fifteenth day with increased mononuclears. Widal was negative and blood culture was negative.

On the thirteenth day the reaction for *B. Proteus* X19 was 1:1280.

ENDEMIC TYPHUS FEVER

Case 2. M. M., white female child aged 4 years was admitted to the hospital on August 17, 1938. Four days previously the patient became suddenly ill with high fever, vomiting, a chill followed by profound weakness and complained of headache and muscular pain throughout the body. From the onset to the time of admission to the hospital the patient refused food and vomited when feedings were forced and continued to run a high fever which would not respond to usual antipyretics.

Physical examination revealed a listless and acutely ill child. Pulse was rapid and weak, approximately 160, temperature 104 F. Physical examination gave essentially normal findings, except a slightly red throat. On the next day after admission (fifth day of illness) a fine red petechial eruption appeared on the abdomen. This became more macular and spread over the entire trunk in the next twenty-four hours. The face and the extremities below the knees or elbows were not involved.

Temperature remained high, from 102 to 103 F. until the eleventh day when it dropped to normal but in the next twelve hours returned to 104 F. and a bronchopneumonia developed in the left side (confirmed by roentgen ray). The temperature fluctuated until the thirteenth day and dropped to normal on the sixteenth day. Recovery was uneventful.

Laboratory: Urine contained albumin, white and red blood cells and bacteria. White blood count was 5,400 on day of admission, 26,000 on the eleventh day with onset of pneumonia and 16,500 on the fourteenth day. Widal and blood culture were negative.

The *B. Proteus* X19 reaction on the seventh day was 1:2560 and 1:5120 on the eleventh day.

630 Good Hope Street.

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CHILDREN'S FOOD DISLIKES

"There is no one food, with the possible exception of milk, which is absolutely essential in the child's diet," William I. Fishbein, M.D., Chicago, declares in the October issue of *Hygeia, The Health Magazine*.

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OCTOBER, 1939

EDITORIALS

CONTROLLING DIPHTHERIA

There is probably no communicable disease concerning which we have such accurate data as we have on diphtheria. We know the cause, specific treatment, a specific test for immunity and, more important than all, the specific method of prevention. It is for this reason that noteworthy progress has been made during the last decade in reducing death rates and in minimizing the prevalence of this communicable disease.

Since the discovery of toxin antitoxin in 1913 by Von Behring efforts to control diphtheria have been made in practically every large city in the country. As a result of these efforts the 1938 records show not only the lowest mortality from the disease, 1.23 per 100,000 population, but also many cities without a diphtheria death, as follows: twenty-four cities with no deaths from diphtheria; ten cities with no deaths from diphtheria in two years; five cities with no diphtheria deaths except in nonresidents. There was a drop from 12.13 deaths from diphtheria per 100,000 to 1.23 per 100,000 population or 91 per cent in fifteen years.

The effectiveness of active immunization can be visualized by comparing the rate of morbidity and mortality from diphtheria before mass immunization was established in a community with the rate after active prophylaxis had been used in the same community for a number of years.

The effect of cooperation between the medical profession and public health officials in controlling diphtheria in a community can be appreciated by the results obtained in St. Louis. For five years the St. Louis Health Division, with the cooperation of the St. Louis Medical Society, conducted campaigns to acquaint the public with the effectiveness of toxoid as an immunizing agent in preventing diphtheria. The result has been approximately 80,000 immunizations; a drop of 92 per cent in the number of diphtheria cases and 86 per cent in the number of diphtheria deaths; and also, a drop in the death rate from 4.6 per 100,000 population to 1.86 in 1938.

In the face of this evidence it is justifiable to

conclude that the only child safe against diphtheria is the immunized one and that the child who dies today from diphtheria is the neglected one.

The only way to control the morbidity of diphtheria in any community is to immunize all the children of preschool age who are known to be susceptible to diphtheria, and all the adults found by the Schick test to lack resistance to diphtheria.

Experience has shown that in order to control diphtheria in a community one must immunize over 30 per cent of the children under 5 years of age and over 50 per cent of the children between 5 and 10 years of age before any material reduction may be expected in the diphtheria rate in these age groups. The reason for laying so much emphasis upon the age groups up to 10 years is because in these age groups we have the highest morbidity and mortality rates. Furthermore, if emphasis is laid upon these age groups the population will eventually be well protected against diphtheria.

It must be realized, however, that the state of resistance is not obtained with equal ease in all the individuals. Consequently it is necessary to insist on the completion of the full course of immunization and, above all, at the completion of immunization a Schick test must be carried out in order to ascertain the effectiveness of the procedure in each case.

Moreover, recent investigations seem to indicate that even in the cases where a sufficient degree of resistance has been secured, as indicated by the negative Schick test, this resistance may disappear at different rates in different individuals.

It is evident that if those subjected to immunization are exposed to infection after the disappearance of acquired immunity they may contract the disease. Therefore, the necessity of carrying out periodic tests for susceptibility (Schick) and re-immunizing all those who may have lost their resistance is important if control of diphtheria is to be effective and lasting.

HEALTH AND LONGEVITY OF LIFE

The health of a nation and the longevity of life of its inhabitants are generally conceded to be in direct proportion. By this standard the United States has improved the health of its people in a convincing manner since the beginning of the present century. In 1901, the expectation of life for a boy baby was 48.23 years; in 1937 it was 60.75. For a girl baby the expectation of life in 1901 was 51.08 years and in 1937 it was 65.08. These gains were accomplished in spite of the World War, the epidemic of influenza and an economic condition which endangered health standards.

Compared with other countries the United States now ranks high in health standards as judged by longevity of life. A recent publication of the Metropolitan Life Insurance Company gives the expectation of life in the United States as

greater than in Belgium by about three years, England and Wales by a little over one half year, Ireland by three and three fourths years, Germany by over one year, Italy by almost six and a half years, Poland by twelve and a third years and Scotland by four years. The expectation of life in the United States is less than in Sweden by two years, Denmark by one half year, Norway by two and two thirds years, Netherlands by three and one third years, Australia by two and three fourths years and New Zealand by four and three fourths years.

While the upward trend in life expectancy in the United States was greatest in the period from 1910 to 1920, some increase has been gained each year and the knowledge and skill of the medical profession and health administrations in this country point to the United States as a leader in longevity of life and health of its people.

NEWS NOTES

The Idaho State Medical Association had as guest speakers at its forty-seventh annual session at Boise, August 23 to 26, Drs. F. E. Walton, David P. Barr, Alexis F. Hartmann, O. H. Schwarz, Nathan A. Womack and Sherwood Moore, St. Louis.

Dr. O. Jason Dixon, Kansas City, was a guest of the Rocky Mountain Medical Conference in Salt Lake City, Utah, on September 5 and 6. He spoke on "Diagnosis and Treatment of the Three Major Complications of Mastoid Disease," and "Research Studies in Wound Repair."

Among presentations at the forty-fourth annual meeting of the American Academy of Ophthalmology and Otolaryngology to be held in Chicago October 8 to 13 will be papers by Drs. O. Jason Dixon, Kansas City, and B. Y. Alvis, Meyer Wiener, Arthur W. Proetz, Roland M. Klemme and Max Goldstein, St. Louis.

A recent decision on medical service for the Civilian Conservation Corps permits the employment of physicians who are not Medical Reserve Officers. Doctors needed for this service may now be employed under the rating of civilian employees or on a contract basis, the initial pay being \$2,600 a year. The principal duties at camps consist of the medical care of the enrollees and the practice of preventive medicine. Physicians interested in this type of service are requested to submit their applications to the office of the Surgeon, Headquarters, Seventh Corps Area, Federal Building, Omaha, Nebraska, giving date when available and preference of assignment to states of Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Missouri, Kansas and Arkansas.

The film on pneumonia, "A New Day," prepared and shown by the Metropolitan Life Insurance Company, was presented in 101 theaters in Missouri, or in 22 per cent of the number to which it was offered. The film was shown 538 times and attendance at the shows at which it was shown totaled 99,599. The film is now being revised to include the latest advancements in the treatment of pneumonia and will again be offered to theaters.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Sulfanilamide—Abbott, 4 Gm. Ampoules (Crystals)

The Denver Oxygen Co.

Carbon Dioxide-Oxygen Mixture

Oxygen-Carbon Dioxide Mixture, Carbon Dioxide 5%; Oxygen 95%

Oxygen-Carbon Dioxide Mixture, Carbon Dioxide 7%; Oxygen 93%

Oxygen-Carbon Dioxide Mixture, Carbon Dioxide 10%; Oxygen 90%

Lederle Laboratories, Inc.

Immune Globulin (Human)—Lederle

Tablets Ascorbic Acid—Lederle, 0.025 Gm.

Wm. S. Merrell Co.

Ampuls Caffeine with Sodium Benzoate, 2 cc.

Sulfanilamide—Merrell

Sulfanilamide Tablets, 5 grains

Sulfanilamide Tablets, 7½ grains

Winthrop Chemical Co., Inc.

Salyrgan-Theophylline Solution (Winthrop)

Ampoule Solution Salyrgan-Theophylline, 1 cc.

Ampoule Solution Salyrgan-Theophylline, 2 cc.

ORGANIZATION ACTIVITIES

JUSTICE DEPARTMENT APPEALS DIRECT TO SUPREME COURT

The United States Department of Justice has filed a petition in the United States Supreme Court for a review of the decision of Justice Proctor of the United States District Court for the District of Columbia dismissing the indictment of the American Medical Association, according to press reports. Of this action, which refers to the American Medical Association and three other medical organizations and individual physicians, the *Journal of the American Medical Association* for September 16 says in an editorial:

The department seeks in this way to avoid a decision by the United States Circuit Court of Appeals for the District of Columbia, to which an appeal would ordinarily lie and to which the department had already appealed. The department seeks to justify this course on the ground that Justice Proctor's decision would ultimately reach the United States Supreme Court for

review, no matter how the Circuit Court of Appeals might decide, and that the case would therefore be speeded and the public benefited by ignoring that court. This line of reasoning, if generally accepted, might relieve all United States circuit courts of appeal of a substantial part of their present work. Moreover, if the Supreme Court refuses to entertain jurisdiction, the actual settlement of the case may be retarded.

A decision in the present stage of this case by either the Supreme Court of the United States or by the United States Circuit Court of Appeals must necessarily be limited to questions of law and will not determine in any degree the truth or falsity of the charges against the American Medical Association and others, formulated in the recently dismissed indictment.

SENATOR ROBERT A. TAFT SPEAKS

In an address at the laying of the cornerstone of the Doctors' Hospital, Washington, D. C., July 11, Senator Robert A. Taft, in part, said:

We have before us in Congress today the National Health Bill introduced by Senator Wagner, proposing to extend vast federal assistance throughout the field of public health and medical care. It appropriates, out of our growing deficit, approximately \$100,000,000 of federal money the first year, and gradually increasing sums thereafter, until in ten years it will cost the federal government more than \$400,000,000 and requires the states to supply approximately the same amount. This money is to be distributed to those states which have adopted state plans in various fields of medical work. In general the character of the plan is left to the state, but the appropriation of money collected from all the states to those states which go along with the program forces all the states as a practical matter to adopt some plan in each one of the fields covered by the bill. Six categories of state activity are provided for, namely, maternal and child welfare, handicapped children, public health work, hospitals, general medical care and sickness insurance. The bill has been strenuously attacked by many witnesses from the medical profession and is not likely to be pressed at this session, but I believe that in 1940 a federal medical program of some kind will be adopted. What form it takes depends largely on the medical profession. I am most hopeful that the doctors determine what comprehensive program can be adopted to improve the health of the American people, and that they propose a practical measure to assist that program.

The present bill seems to me needlessly complicated. Its administration will take place under three different federal departments. Every state must adopt at least six separate plans, and for each plan there is an advisory committee, so that the bill will create approximately 300 different boards, largely composed of laymen. . . .

There is hardly a field in which there has been more sensational and continuous improvement than that of medicine in the United States. That improvement has been due to the brilliant, unselfish and industrious work of thousands of physicians. It is not their fault that incomes are unequally distributed and that efforts by local government to cover the entire field of health have been restricted by lack of resources. But now I hope they will take an active interest in seeing that the unequalled medical service received by most Americans is extended to the entire population. Their own interest and participation in the program will make it certain that it is not dominated by half-baked theorists or by those who believe in a totalitarian state, directing

the lives and caring for the health of all its citizens through the mechanical and usually careless action of government bureaus. I believe a federal aid program can be worked out. I believe it can be much simpler and much more economical, and much more likely to preserve the essential independence of the doctors than the present Wagner bill. I believe it can be worked out with the assistance and cooperation of the doctors themselves.

NEW FEDERAL COSMETIC REGULATIONS ANTICIPATED BY THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association has been working for several years on correction of misleading names and advertising claims used by cosmetic manufacturers. The work now being carried out under the provisions of the recently passed Wheeler-Lea Act and the new Food, Drug and Cosmetic Act augments this work of the Association. Referring to a list of misleading terms recently issued, an editorial in the *Journal of the American Medical Association* of September 2 says:

Manufacturers of cosmetics who have followed the decisions of the American Medical Association Advisory Committee on Advertising of Cosmetics and Soaps have in many instances anticipated the suggestions as to terminology just issued by the Food and Drug Administration.

Under the Food and Drugs Act of 1906 the cosmetic industry functioned with little or no restraint. Occasionally the unfair trade practice laws of the Federal Trade Commission were used to inhibit extraordinary claims and occasionally manufacturers stepped into therapeutic fields; otherwise there was practically no limitation on the use of misleading names or deceptive containers or foolish advertising claims. In 1938 the Wheeler-Lea Act and the new Food, Drug and Cosmetic Act were passed. Now the Federal Trade Commission can require a manufacturer to show cause for certain claims. If such cause cannot be shown, a stipulation or a cease and desist order is issued with a view to preventing such claims. Thus the Federal Trade Commission has ordered certain manufacturers not to use the word "nonallergic." The Federal Food and Drug Administration, which enforces the Food, Drug and Cosmetic Act of 1938, recently notified manufacturers, packers and distributors of cosmetics that certain names and statements used on the label of cosmetics contravene requirements of the statute which have now become effective. The official release states that:

The extent to which the use of such claims which may be regarded as false and misleading prevails suggests the propriety of a general notice to the trade to encourage appropriate label revision. It is, of course, not practicable to list all the claims that may be unwarranted; the following, however, are typical examples of some that are regarded as false or misleading:

Contour cream	Circulating cream
Crow's-foot cream	Enlarged pore preparations
Deep pore cleanser	Hair revitalizing preparations
Depilatories for permanent removal of hair	Muscle oil
Products represented as depilatories but which merely bleach the hair	Nourishing cream
Eyelash grower	Pore paste
Eye wrinkle cream	Skin conditioner
Hair color restorer	Skin firm
Hair grower	Skin food
Hair restorer	Skin texture preparations
Nail grower	Skin tonic
Nonallergic products	Stimulating cream
Peroxide cream	Tissue cream
Rejuvenating cream	Wrinkle eradiator
Scalp food	Cosmetics represented as valuable because of their vitamin content.

A number of preparations have also been encountered which appear to be misbranded because they are represented as containing ingredients not actually present or present in insignificant proportions.

The designation of a product by the name of one ingredient, to the exclusion of all others, may also result in misbranding. Paragraph (b) under section 602 (A) of the general regulations for the enforcement of the Food, Drug and Cosmetic Act provides in part that "the labeling of a cosmetic which contains two or more ingredients may be misleading by reason (among other reasons) of the designation of such cosmetic in such labeling by a name which includes or suggests the name of one or more but not all such ingredients."

Formerly cosmetics were not advertised particularly to the medical profession. Then it was realized that physicians are interested in cosmetics, particularly from the point of view of allergy. The Board of Trustees of the American Medical Association recognized the necessity for expert advice in this field and created an Advisory Committee on Advertising of Cosmetics and Soaps, whose function it is to advise *The Journal* concerning the cosmetic products that are advertised in its pages. One of the first problems attacked was the question of allergy. In 1937 the committee stated that it was unable to accept any statement to the effect that a product was "nonallergic," because even the simplest preparation may be allergic to susceptible persons. In addition the committee had opposed the promotion of such items as "skin fresheners" and "tissue creams," since there is no evidence that tissue can be nourished or skin freshened by cosmetic preparations. In similar vein the committee has held that such terms as hair or scalp tonics or lotions for which therapeutic claims are made, such as treatment of falling hair, dandruff or scalp infections, are not acceptable for advertising. If these preparations are recommended for the treatment of skin diseases they come within the purview of the Council on Pharmacy and Chemistry.

Other problems concern "medicated cosmetics," astringents and lotions. If a product owes its action to the presence of a therapeutic substance, it may come within the purview of the drug section of the new law. The "antiperspirants" owe their value to the presence of a relatively large amount of aluminum salt, such as the chloride; possibly these may be classed as drugs rather than cosmetics.

Common usage determines the names of widely used products; it is not always easy to decide whether or not a word which has been used is still misleading. For instance, the word "bracer" has been used to define a mildly astringent cosmetic preparation for the skin. From one point of view this word indicates that the skin will be endowed with some vague enhancement of tone or resistance. However, when used alone the word may simply convey the notion that the product is a cooling and slightly counterirritant preparation. Terms such as these create difficulty for any regulatory body.

OBITUARY

H. L. NIETERT, M.D.

Dr. Herman L. Nietert, St. Louis, was born on a farm near Edwardsville, Illinois, on February 22, 1866. His boyhood was spent on the farm; he attended the public school and Shurtleff College until 1886 when he matriculated at the St. Louis Medical College (now the medical department of Washington University) from which he was graduated in 1889. After winning his degree, he served one year in the St. Louis City Hospital as intern and then went to Europe where he continued his studies of medicine and surgery in the famous clinics of Heidelberg, Berlin and Vienna.

Returning to St. Louis he entered private practice. He worked hard, gave his patients his best attention irrespective of their ability to pay and was always ready, day or night, to assist or consult with his fellow

practitioners. He soon acquired a large practice and made many friends in the medical profession. Among other things he had charge of the surgical clinic at the O'Fallon Dispensary and acted as coroner's physician during this period.

In 1899 he was appointed superintendent of the St. Louis City Hospital in which capacity he served four years. His training in surgery under such masters as Czerny, Billroth, and Von Bergmann together with his executive ability, kindness to his patients and assistants, and indefatigable zeal and energy soon brought the work of the hospital to a par with the best in the country. Here, also, he had the opportunity to try out many new and unusual surgical procedures such as suturing the heart and the delicate organs within the abdominal cavity. Nietert's work was always gentle, neat and finished in an incredibly short time. His results inspired his interns and assistants, many of whom are among the foremost doctors of the country today.

He entered private practice in 1903 at the close of his term at the City Hospital and specialized in surgery. He soon became one of the most successful in this vicinity due to his natural dexterity in operating, good judgment, the result of his training and the experience he had acquired at the City Hospital, and to his pleasing personality. Dr. Nietert was always cool and collected in the operating room and was most considerate of his nurses and assistants who always felt it an honor and a privilege to work with him. He held the position of chief surgeon at the Lutheran and Evangelical Deaconess hospitals for many years until poor health forced him to retire about two years ago. He died at his home on May 8, 1939. Dr. Nietert was a widower, his wife, the former Miss Katherine Ziegenhein, having passed away eleven years ago. In his passing many of us feel the loss of a true friend, the medical profession a most brilliant surgeon, and the City of St. Louis a most useful citizen.—L. H. H., in the *Weekly Bulletin of the St. Louis Medical Society*.

JOHN W. VAUGHAN, M.D.

Dr. John Wesley Vaughan, St. Louis, died September 11, 1938, after fifty-four years of active service in St. Louis in the practice of medicine and surgery—ministering to rich and poor without distinction. He was born February 11, 1857, in St. Louis County near Bridgeton on a farm, a part of a tract of ground originally granted to early settlers by Spain for educational purposes and leased to farmers for nine hundred ninety-nine years.

He was educated in the Bridgeton school and Central College at Fayette. He received his medical degree from the College of Physicians and Surgeons. Later he did postgraduate work in the University of Vienna. He devoted many years to the teaching of anatomy and physiology in his alma mater and then joined a group of successful colleagues who organized the Barnes Medical College which is no longer in existence but from which, through the several years of its existence, many physicians received their training and upon whom Dr. Vaughan left a valuable influence.

His was a mild and unobtrusive character yet forceful and immobile in what he conceived to be his duty; not given to levity but was of a serious turn of mind, kind and sympathetic, much loved by his patients.

He was a devoted member of the Methodist Church throughout his long and useful life, occupying many positions of trust and honor in his local church and the denomination. He was an active supporter of Central College and for forty-four years was a member of its board of curators. Dr. Vaughan was married to Miss Bessie Walsh of Austin, Texas, who with their daughter, Mrs. Luther Wesley Smith, and their son, John Wesley Vaughan, Jr., survive him. To them we extend our sympathy and desire to express our appreciation of Dr. Vaughan's character, attainments and usefulness.

as a fellow worker in ministering to human ills.—H. T., in the *Weekly Bulletin of the St. Louis Medical Society*.

KENNETH F. HUGHES, M.D.

Dr. Kenneth F. Hughes, St. Louis, was born in Quincy, Illinois, March 20, 1909. He was the youngest of four sons. His boyhood was spent on a farm near Irving. He attended the rural grade school and in 1925 was graduated from the Irving High School. Although never considered robust he was quite active in school functions and was an excellent student.

Kenneth's ideal from his earliest boyhood was always his uncle, Dr. Harry Hughes, and shortly after graduating from high school it was only natural that he enrolled in the premedic course at the University of Illinois. He entered the University of Illinois School of Medicine in the autumn of 1931 but after several months of characteristic intensive application he developed a pulmonary infection and was forced to drop out of school. However, a year later he resumed his studies with renewed vigor and was awarded his degree of Doctor of Medicine in 1936.

The year following graduation was spent as an intern at Missouri Baptist Hospital. When this was completed he immediately became associated with his uncle in the practice of ophthalmology.

In the meanwhile, feeling the need for further study in his chosen field, he applied for internship in ophthalmology at Barnes Hospital. There are only six vacancies each year and these few fortunate appointees are carefully picked from a field of several hundred applicants. Those of us who knew Kenneth Hughes were not surprised when it was announced that he was chosen for one of these coveted positions.

However, on September 15, 1938, just four months before the beginning of his internship, Kenneth's most promising career was suddenly interrupted. Medicine in general and ophthalmology in particular most keenly feel and deeply mourn the irreparable loss of a scholar, a doctor and a friend.—W. H. M., in the *Weekly Bulletin of the St. Louis Medical Society*.

HARRY SAMUEL HUGHES, M.D.

Dr. Harry Samuel Hughes, St. Louis, was born in Hillsboro, Illinois, June 23, 1880, where his childhood and early youth were spent. After graduation from high school he went to St. Louis to study medicine. He was graduated from St. Louis University School of Medicine in 1905. He served a rotating internship at the old St. Mary's Hospital.

For about a year he engaged in general practice in Buffalo, Illinois. It was during this period that he determined to make ophthalmology his life work. Returning to St. Louis, he entered the office of the late Dr. Frank L. Henderson as assistant.

Realizing the need for further preparation he spent two years in ophthalmic study abroad. He first went to London where he studied a year at the Royal London Ophthalmic Hospital. He also spent six months in Vienna and a like period in Berlin. After returning to St. Louis he resumed his association with Dr. Henderson. In 1910 he began the independent practice of ophthalmology, and in 1915 he took over the practice of Dr. Waldemar Fisher. He remained in private practice until his death, September 15, 1938.

Dr. Hughes held staff positions in a number of hospitals including the Deaconess and St. Mary's. He was a member of the American Medical Association, the Missouri State Medical Association, the St. Louis Medical Society and the St. Louis Ophthalmic Society.

Soon after beginning independent practice he established an office at Hillsboro and later moved it to Litchfield, Illinois, where he spent one day in each week. In order to care for the large number of patients who

consulted him in Litchfield he was compelled to leave St. Louis very early each Thursday morning. It was during one of these journeys that the lamentable accident occurred which resulted in his death.

During the later years of his career Dr. Hughes was handicapped by increasing deafness. This handicap did not prevent him from carrying on a large practice, nor did it in any way embitter him. Highly conscientious in the performance of his professional work, he endeared himself to an ever increasing clientele. In his relations with his professional colleagues he displayed a knowledge and understanding of the highest standards of ethical conduct. Despite a practice which kept him continuously busy he remained abreast of recent developments in ophthalmology.

The St. Louis Medical Society deploras the untimely loss of a member whose sterling character, engaging personality and high professional attainments reflect credit on himself as well as on the Society both in the profession and in his community. In memory of Dr. Harry Samuel Hughes, this Society expresses to Mrs. Hughes, relatives and friends our profound regret and deep sympathy.—R. E. M., in the *Weekly Bulletin of the St. Louis Medical Society*.

BOOKS FOR LEISURE MOMENTS

SOCIETY AND THE INDIVIDUAL

Dr. Morris Siegel, a general practitioner for twenty-one years, discusses "Population, Race and Eugenics" (published by the author at 546 Barton Street, East Hamilton, Ontario, Canada). The statistics which he offers in support of his argument are often of an old vintage.
B. Y. G.

THE ROOTS OF BACTERIOLOGY

There is evident throughout medical history a strong tendency to ascribe the origin of a particular branch of our science to a single man as if he, alone and unaided, carved a new field from the vastness of life. Perhaps from the point of view of the pedagogue concerned only with passing simplified facts on to his students, there is justification for such a course. But such teaching results in the neglect of those who laid the foundation utilized by the man who brought the subject into the general view and hails him as a discoverer when in fact he is only an elaborator.

We imagine that the average physician regards Robert Koch as the founder of bacteriology. His four postulates are integral to the medical curriculum. There is an attractive glamour to the story of the country practitioner who neglected his wife and his patients for his bugs and spent the remaining years of his life in contact with all the technical facilities of a great German university. But had Ferdinand Cohn not been enthusiastic about the experiments of Koch and urged his appointment to the Berlin post we doubt that the progress of bacteriology would have been delayed. Indeed, Koch sought Cohn, Professor of Botany at Breslau, because he was the leading student of bacteriology of that day.

The Johns Hopkins Press has just made the story available in its series of historical monographs under the title, "Bacteria, The Smallest of Living Organisms" published by Dr. Ferdinand Cohn in 1872, four years before Koch's classic demonstration of the life cycle of the anthrax bacillus. In his fascinating article Cohn describes six different types of bacteria. He points out that putrefaction is a chemical process excited by bacteria. He speculates upon the effect of unhampered bacterial growth upon the world, for if one bacterium were

allowed to divide at its normal rate, its progeny would fill all the oceans at the end of the fifth day.

Not the least interesting part of Cohn's discussion deals with the origin of life upon earth. Because one bacterium weighs only 0.000,000,001,57 milligrams it may be carried by the winds to incalculable heights and for incalculable distances. What was to keep a single bacterium from being wafted from a life containing planet to earth where it fell into the sea and was nourished by the salts there present? Since the bacteria has survived upon earth longer than any other single form of life, the hypothesis suggested by the author is at least worthy of consideration.

B. Y. G.

FIXATION IMPEDIMENTS

Medical art has invented therapeutic agent after therapeutic agent. Primitive man had to resort to omens and later to roots and herbs. From time to time the ancients displayed an interest in dreams, largely as auguries. Since 1888 an increasing number of physicians have manifested a scientific interest in the dream and its connotations. Under the impetus of Sigmund Freud the school of psychoanalysis has been developed. His pupils have spread the methods of the master, added to them, modified them. They are in utter disagreement as to the mechanism and interpretation of the outpouring of the subconscious.

Among Freud's more famous pupils is Wilhelm Stekel. Because Stekel has made few literary contributions his pupil, Emil Guetheil, has written "The Language of the Dream" (Macmillan Company, New York). The primary difference between the approach of Freud and Stekel lies in the latter's insistence that a prolonged period of free association is not requisite to the understanding of the dream. Stekel is said to possess an uncanny ability to interpret dream symbols because of the similarity of these unconscious mechanisms in different men. For example, Guetheil lists over fifty phallic symbols, each of them having the same significance, each of them offering the analyst a clue to the secret of the patient; and each of them capable of a wrong interpretation!

Every one dreams in that short period which marks the transition from sleep to wakefulness. The dream is an emotional expression, either of a wish, a taboo or a warning. By its aid the psychoanalyst is enabled to relate the dreamer to reality, to bring into the conscious layers of his mind those obstructive thoughts that have hindered full participation in life.

Guetheil presents nearly four hundred dreams to illustrate the connotations he ascribes to them. Many of them, as might be expected, are concerned with disturbances in the sexual sphere. This the author explains is due to the fact that morals make repression of ideas in this field a necessity. A general tendency in dreams is changing material which contravenes the accepted standards into a more decent form, often with the substitution of symbols for repulsive descriptions of the sexual organs.

While the physician may not espouse the methods of psychoanalysis "The Language of the Dream" affords an illuminating presentation of this portion of the therapeutic armamentarium. Its perusal cannot fail to add something to his understanding of the psychic difficulties presented by so many patients.

John Coignard, the pseudonym adopted by a practicing psychoanalyst, turns the psychoanalytic technic into a novel. While the plot is a little tenuous, "The Spectacle of a Man" (Jefferson House, New York) offers a graphic spectacle of the language of the dream. Coignard appears somewhat more of the pure Freudian than Guetheil. He carries the reader over the ten month period of analysis required to reeducate Arnold Harvesting, to make him at least by implication a socialized human being.

"The Spectacle of a Man" is the story of the Oedipus complex resolved. Too strongly attached to his mother, Harvesting, the hero, if that be a sufficiently descriptive name for a man who remakes his life, lives alone, a bachelor and a stammerer. Through a series of dream interpretations and the rationalization of his life's experience he reaches that state of understanding of himself wherein he may look forward to marriage with a woman doctor. Whether this choice of a mate signifies a lesser degree of cure than the author would have us believe must be decided by the individual reader.

The story is thoroughly modern. It will provide a modicum of entertainment but no great understanding of psychoanalysis. Two liaisons are included to give the volume a twentieth century flavor. The emotional difficulty of breaking with one of these women is adequately portrayed. Indeed, that is perhaps the strongest part of the book.

B. Y. G.

THE ALLURE OF MAGIC

There is a close relationship between the medieval alchemist, who promised to transmute the base metals into gold, and the modern quack or charlatan. Both derive their being from the unwillingness of people to work, either for material wealth or to achieve understanding. They prefer to rely upon the promised magic of one as ignorant as themselves but skilled in appealing to the uncritical emotions of the mob.

Grete de Francesco, a European newspaper man, uses the foregoing premise in his exposition, "The Power of the Charlatan" (Yale University Press, New Haven, translated by Miriam Beard). At the close of the nonproductive period labeled the Middle Ages men once more resorted to study and investigation. The man in the street, however, could not keep up with the scientific advances of the period. He found it simpler to listen to the blandishments of the charlatan.

The latter however learned quickly that he must not depend entirely upon himself to attract the mob. A side show, a modern circus freak, a "spieler," any of these proved a necessary adjunct to the business of selling wonder working medicines which would heal, banish and destroy disease.

The author is so absorbed by the mechanics of the charlatan that he takes too little space to describe the ingredients of his magic ointments. Perhaps he implies their composition in the prescription of the haste with which the itinerant healer left town after reaching his sales quota for the day.

Perhaps the power of the charlatan is no better illustrated than in those sections of the book dealing with his appearance at court. He was called upon to save the credit of nations struggling under a vast debt. He was feted and honored by all manner of men until such a day as he found it expedient to remove himself and his entourage from the possibility of reprisal by angered citizens.

One conclusion emerges from de Francesco's book. The charlatan is here to stay. No power seems able to eradicate him. Nevertheless the extension of education should go far toward eliminating some of his abuses.

B. Y. G.

PARENTS MUST ACCEPT RESPONSIBILITIES

A plea to parents to accept their responsibility in preparing their children for happy and useful lives, rather than to shift the entire burden to the school, is made by Haydn S. Pearson, Newton Highlands, Mass., in *Hygeia, The Health Magazine* for September.

"The best kindergarten in the world is a good home training during the first six years," he reminds parents. "You can instill qualities in your child which give him a background for success in school."

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.
Perry County Medical Society, December 15, 1938.
Camden County Medical Society, December 23, 1938.
Ste. Genevieve County Medical Society, December 23, 1938.
Dent County Medical Society, January 25, 1939.
Stoddard County Medical Society, January 30, 1939.
Howard County Medical Society, February 15, 1939.
Macon County Medical Society, February 22, 1939.
Johnson County Medical Society, February 25, 1939.
Morgan County Medical Society, March 21, 1939.
Webster County Medical Society, March 28, 1939.
Carter-Shannon County Medical Society, March 30, 1939.
Holt County Medical Society, March 31, 1939.
Bates County Medical Society, April 1, 1939.
Lincoln County Medical Society, April 5, 1939.
Miller County Medical Society, April 5, 1939.
Moniteau County Medical Society, April 5, 1939.
Barry County Medical Society, April 6, 1939.
DeKalb County Medical Society, May 23, 1939.
St. Francois-Iron-Madison-Washington-Reynolds County Medical Society, July 20, 1939.
Mercer County Medical Society, July 21, 1939.
Linn County Medical Society, August 1, 1939.
Pettis County Medical Society, August 8, 1939.

CORRESPONDENCE

RURAL REHABILITATION

United States Department of Agriculture
Farm Security Administration
Boone Bldg., Columbia, Mo.

August 26, 1939

To the Editor:

Knowing that you have a vital interest in the welfare of Missouri's 278,400 farm families, particularly those who have been handicapped by severe financial

reverses during recent years, I have prepared a summary of progress made during 1938 by those farm families who are being helped by the Farm Security Administration.

They are families who, because of one reason or another, have found themselves unable to make sufficient income to support a satisfactory standard of living, pay their debts or even continue farming. The factors contributing to this situation are many and varied. Some of these families have suffered reverses through no fault of their own, depression, floods, fires, sickness, drought, poor land, lack of satisfactory tenant-landlord relationships and many similar reasons over which the individual has had little or no control. Many others have, through their own mistakes, found themselves in unfortunate circumstances. Unwise use of credit or lack of sound management ability are some of the causes coming under this heading.

Since the Farm Security Administration first began operations some four years ago, approximately 20,549 such Missouri families have received assistance from this organization in the form of credit and assistance in working out their management problems.

To indicate the methods by which the Farm Security Administration has helped bring about this progress, I would like to explain briefly our program. Just as the name signifies, it is intended to help the low income farm group attain security and self-dependence by offering credit and assistance in working and practicing sound farm and home management plans.

I would like to emphasize that no farm family able to obtain credit from any other government or recognized private credit agency, is eligible for assistance from the Farm Security Administration.

The program is divided into three phases. These are Rural Rehabilitation, Resettlement, and Tenant purchase.

Affecting by far the largest number of farm families, the Rural Rehabilitation phase is intended to assist the farm families who, as owners or tenants, have suitable land available for farming, but who need credit and assistance in solving management problems.

This phase involves a combination of relatively small loans for livestock, equipment, seed, and other operating needs plus assistance in working out farm and home management problems. It is with farmers operating under this phase that the progress summary which will follow is directly concerned. Loans made under the Rehabilitation phase generally are confined to five years' time with interest at 5 per cent on the unpaid balance.

The Resettlement phase involves the purchase and improvement of fertile land by the Farm Security Administration for occupancy by farm families of three general classes:

1. Tenants or owners attempting to wrest a living from poor soil.
2. Tenants faced with insecurity of tenure.
3. Farm laborers who cannot obtain suitable land to rent.

This particular phase is being operated on a limited scale in the form of projects. There are two such projects in Missouri. They are called Osage Farms and Southeast Missouri Farms, and have headquarters in Hughesville and LaForge.

The third phase of the Farm Security Administration program is the Tenant Purchase phase. It provides for the making of forty year, 3 per cent loans to a limited number of farm tenants or farm laborers for the purchase of farms. To date, 187 such loans have been made or are in the process of being made in Missouri. These loans are distributed among nineteen counties selected over the state on the basis of farm population, prevalence of tenancy, types of farming, and geographical distribution.

The Farm Security Administration is concerned

mainly with enabling farm families to help themselves, by assisting them in working out their farming operations so that they not only will be able to repay their loans, but, more important, will be able to permanently rehabilitate themselves. The lending of money might be termed a minor necessity in this job. I do not mean that we do not attempt to collect the money. Each borrower is obligated to repay just as though he had borrowed from a local bank. And, as a matter of fact, they are making repayments. Since the Farm Security Administration first began operations in Missouri, a total of \$12,994,271 has been loaned. Today \$2,831,997, or about 21 per cent, has been repaid. We consider this a good record in view of the fact that most of the loans were made on a five year basis two years or less ago. Also, it should be remembered that none of these people could obtain credit from normal lending agencies.

To accomplish this basic principle of the program, the Farm Security Administration has a staff of thoroughly trained and experienced farm and home management field employees, who work daily with families who have obtained assistance from this organization.

Recently our farm and home management field people in Missouri made a survey to determine what progress along these lines was made during 1938 by some 12,700 farm families who had Rehabilitation loans during that year. The results of this survey have been tabulated and we are giving you some of the facts disclosed in the tabulations.

During 1938, these families made a gain in net worth of \$1,836,200. The same group made total gains in new worth of \$2,080,809 since their applications for assistance first were accepted.

While increase in net worth is one indication of progress, we believe that the efforts of these families to increase their standard of living are graphically illustrated in their progress toward production of foods for home use. At the end of 1938 these 12,700 Missouri families had increased the number of quarts of fruits and vegetables canned for home use by 2,143,174 or an average of 169 quarts more than they had canned annually previous to coming into the program. With regard to meat produced for home use, production during 1938 showed an increase of 3,620,109 pounds or an average of 285 pounds of meat produced for home use than was produced by these families annually before they joined the program.

The same story holds true of milk. During 1938, these families averaged 383 gallons more milk produced for home use than they had produced annually before acceptance into the Farm Security Administration program. The figures showed an increase of 911,180 dozen eggs produced in 1938. Fruits, roots, and tubers stored amounted to an average of 17 bushels per family in 1938.

This expansion, in what we term our "Live-at-home" program, by enabling them to save considerable money on home and food costs, will help them conserve their financial resources. If these families progress and their financial reserves begin to mount above the danger line, some of the money saved on home production of food can be used for the purchase of many varieties of manufactured goods which they cannot now afford. Consequently, this phase of their rehabilitation efforts will probably eventually contribute to a greater purchasing power among many of these families.

Another factor to be considered is that of health. Good health makes these families better risks for loans made to them. It also is bound to contribute toward their eventual success. As I mentioned previously, they do not have sufficient income to purchase vegetables, fruits, milk and poultry produce; consequently, if they do not produce these foods on the farm, they will do without, and will not be getting balanced healthful diets which constitute such an important factor in the maintenance of good health.

To improve the tenure of our tenant borrowers, the Farm Security Administration has attempted to promote interest in better leasing arrangements and better understanding between landlord and tenant. During 1938, 54 per cent of all Missouri Farm Security Administration families who were tenants, operated under written leases.

Other figures show that approximately 56 per cent of these families kept satisfactory farm and home records in 1938. I believe this is very significant since it is my feeling that one of the quickest ways these families can check the leaks and find the places where they can make improvements in their farm and home activities is by keeping records which will show them exactly what has been done.

I consider it most encouraging to know that, in Missouri, some 9,784 children of school age were enabled either to return or to continue in school as a direct consequence of progress being made by their families under the Farm Security Administration program.

The various figures which I have given you cannot, of course, give a complete picture of the work we are attempting to do. At best, they only present averages on some of the more vital measures of progress. However, I believe they will give you some idea of the attempts these families are making to pull themselves up to a level of self-dependence and security.

Nor do we feel that this program has solved the problem; even after four years of operation, we have not been able to reach all of the eligible farm families of Missouri who need such assistance. Financial and personnel limitations set a definite limit as to the number of families we can reach. In some cases, lack of suitable land has proved to be a problem. The generally unsatisfactory farm price levels, weather conditions, debt loads, and other unfavorable factors have contributed to the difficulty of the problem.

But we feel that the future welfare of farm families now in the low income bracket has a definite influence on the welfare of all farm families and on the welfare of the entire population of the state and nation. Consequently, we feel that we must make a continued attack on the problems of the low income farmers. We have made some progress and the families themselves have made much more.

It is my hope that this letter will give you a clear, if somewhat brief picture of what our clients have accomplished and some of the problems still facing us.

STEPHEN C. HUGHES, State Director,
Rural Rehabilitation.

BOOK REVIEWS

THE PATIENT AS A PERSON. A Study of the Social Aspects of Illness. By G. Canby Robinson, M.D., LL.D., Sc.D., Lecturer in Medicine, Johns Hopkins University. New York: The Commonwealth Fund. 1939. London: Humphrey Milford, Oxford University Press. Price \$3.00.

If there are any medical students or physicians left who tend to overlook their patients' family status or socio-economic condition, this book by Dr. Robinson should be prescribed reading for them. However, even the most socially minded physicians would do well to read it carefully.

The author properly "sounds his keynote" in his first chapter: "In their devotion to science, leaders of medicine have had little time or energy for the consideration of the patient as a person, as a unit in a complex society and as an organism subjected to many strains and stresses from his environment." Although written in the "plain unvarnished" style of a medical

textbook, the language is such as to be understood by social workers (who should certainly be interested) and even medically inclined educated laymen.

The study occupied the year from June 1936 to June 1937. One hundred seventy-four patients were carefully observed and they and their families interviewed from time to time. The clientele came from the "Eastern Health District" of Baltimore (population of the district 56,000, 23 per cent Negro). One hundred twenty-two were out-patients, 52 ward, 142 white, 32 Negro, 84 female and 90 male. Classification of the patients according to disease was: cardiovascular, 33; tuberculosis, 16; pneumonia, 8; other respiratory diseases, 20; gastro-intestinal diseases, 7; syphilis, 7, and psychoneuroses, 45.

Adverse social conditions affecting subsistence were listed as: (1) Inadequate physical protection including unfavorable habitat and locality, inadequate shelter and clothing, insufficient food supply and lack of the personal service needed for medical care. (2) Inadequate economic protection including undue effort to secure subsistence and inadequacy of means to secure subsistence. (3) Faulty personal habits influencing protection of health including habits interfering with the carrying out of medical recommendations, habits unfavorable to health and personality traits making difficult the "endurance of disability."

Adverse social conditions affecting satisfaction were listed as (1) Dissatisfaction connected with family or other group relations including lack of family group, incompatibility and friction with associates and lack of satisfying social status. (2) Dissatisfaction connected with restricted outlets including lack of satisfying work, lack of satisfying recreation and lack of satisfying social life.

The list fairly covers both the "heartache" and the "thousand natural shocks that flesh is heir to." It is both instructive and depressing to note that 80 per cent of the 174 patients revealed some type of "adverse social condition." And of the "positive" cases, social adversity was definitely related to illness in 66 per cent. Over 30 per cent of the Negro patients lacked adequate physical protection as compared with 13 per cent of the white people. The Negro patients showed much less severe reaction to adversity.

In only seven of the 174 patients was there opportunity for cooperation between the doctor and the minister. In all but two instances, definite benefit to the patient resulted. (Those interested should read, if they have not already, "The Art of Ministering to the Sick," by Richard Cabot and the Reverend Russell Dick.)

The chapters concerned with patients having circulatory, respiratory, and digestive symptoms, and those on diabetic, syphilitic, epileptic and psychoneurotic patients, are replete with interesting case reports, all emphasizing the socio-economic and emotional points of view.

To illustrate the usefulness of the book to the student I quote a bit of advice concerning patients with cardiovascular disease: "Every precaution should be taken not to induce a psychoneurotic state of mind. . . . as a life should never be ruined in order to save it. Fear as a means of bringing a patient under the will of the doctor should have no place in the art of medicine, even when there seems to be no other way to keep the patient from forgetting his physical limitations."

I have described and summarized rather than exercised the reviewer's right to pontificate. Like St. Paul, I am entitled to my "Finally, brethren," and it runs thus: Students are and should be taught by both investigators and practitioners. The latter are prone to accuse the former of being too hard-boiled and scientific and to "leave the patient out of account." Dr. Robinson makes no such accusation nor should any of the rest of us for it is so likely to be false. Suffice it that students, practitioners and laboratory and clinical

workers alike should never be allowed to forget that the patient is that bundle of emotions, symptoms and inconsistencies known as a person.

P. J. W.

CANCER, ITS DIAGNOSIS AND TREATMENT. By Max Cutler, M.D., Associate in Surgery, Northwestern University Medical School, etc., and Franz Buschke, M.D., Assistant Roentgenologist, Chicago Tumor Institute. Assisted by Simeon T. Cantril, M.D., Director, Tumor Institute, Swedish Hospital, Seattle. Philadelphia and London: W. B. Saunders Company. 1938.

This book contains 687 pages of easy reading matter supplemented with 346 illustrations.

The authors have attempted to present the cardinal clinical features and treatment of human cancer. Each part of the body has been considered in a systematic manner and the more frequent types of cancer found in these parts discussed as to the clinical features and treatment. The pathology of cancer is not stressed in this book.

Before the authors enter into the various regional discussions of cancer, forty-nine pages are devoted to a thorough discourse in radiation therapy, biopsy and spread of cancer. This section is interesting and well worth reading. It gives a review and résumé of most of the important information and facts regarding radium therapy.

The remainder of the book reviews and discusses the various types of cancer in the human, starting with the skin and ending with cancer of the blood forming organs. The sections on cancer of the gastro-intestinal tract, female organs and breast are well written and are most interesting and informative.

The surgical procedures and technics advocated in carcinoma are mentioned and in some instances described. One would have to refer to other surgical textbooks for a more detailed description of these procedures.

The bibliography is quite extensive and also follows in the methodical order according to the various parts of the body.

This book is exactly what its authors intended it to be, a résumé of the more useful and better known facts concerning the clinical aspect and treatment of cancer of the various parts of the body. It is a book of interest and of value to the student, general practitioner, specialist and all who meet with the problems of cancer.

J. G. P.

CANCER. With Special Reference to Cancer of the Breast. By R. J. Behan, M.D., Dr. Med. (Berlin), F.A.C.S., Cofounder and Formerly Director of the Cancer Department of the Pittsburgh Skin and Cancer Foundation, Pittsburgh, Pa. Illustrated. St. Louis: The C. V. Mosby Company. 1938. Price \$10.00.

In the preface of this volume the author, who was cofounder and formerly director of the cancer department of the Pittsburgh Skin and Cancer Foundation, explains "the book was written originally as a treatise on cancer of the breast, but since cancer of the breast cannot be understood without a comprehensive knowledge of cancer in general, I have been obliged in order better to attain my objective to enter into a detailed description of many of the phases of cancer activity, and in this setting I have placed my discussion of cancer of the breast."

He further states that since "I was unable to find in a concise and abstract form in a single monograph the description of the complex changes associated with cancer, I began to collect, abstract, study and compile the principal facts and theories concerned with the etiology, diagnosis and treatment of cancer."

The book is composed of twenty-nine chapters with

168 illustrations. Each chapter is a monograph in itself, dealing with the subject in a most comprehensive way and supporting the conclusions or discussions by many references which make the work invaluable.

The two chapters on etiology comprise about one hundred pages and deal with a discussion of the essential biologic changes as factors in the etiology of cancer; general consideration of tumor origin and growth; systemic causes; hereditary predisposition; relationship of cancer to endocrines; local disturbances; irritations; inflammation; physiologic activity and hyperactivity such as occur with menstruation, pregnancy and lactation; chronic cystic mastitis; traumatism, especially in relationship to cancer of the breast; maladjustments in the hormonal regulatory elements; and finally the direct transmission of cancer from one person to another.

He then takes up pathology, symptomatology, diagnosis, metastasis, prognosis and treatment. Under treatment are discussed constitutional as well as operative treatment, and also the value of organotherapy. The operative treatment is thoroughly covered both from the point of view of anesthesia, type of incision, extent of skin excision, the completeness of removal of the cancer, skin grafting and postoperative treatment.

The final chapters are on irradiation on which there is a lengthy discussion on the merits of irradiation, both preoperative and postoperative, from the standpoint of their respective partisans.

The reviewer after many years of cancer surgery has read this book with much pleasure and can heartily state that as a reference book on cancer he knows of none better.

W. E. L.

ENDOCRINOLOGY IN MODERN PRACTICE. By William Wolf, M.D., M.S., Ph.D., Endocrinology to the French Hospital; Attending Endocrinologist, Misericordia Hospital, New York City; Consulting Endocrinologist, New York University Dental School. Second Edition, Completely Revised. Philadelphia and London: W. B. Saunders Company. 1939. Price \$10.00.

In this 1,077 page volume the present knowledge of the entire subject of endocrinology is dealt with in a comprehensive and authoritative manner, free from burdensome, technical and theoretical discussions. It includes comprehensive descriptive sections on each of the endocrine glands including anatomy, physiology and pathology, and the useful diagnostic and therapeutic procedures in this field are adequately described with praise worthy conservatism. The volume is an excellent textbook for the student, a ready and complete reference book for the clinician and good reading for anyone interested in this subject.

In addition to completely covering the knowledge of the hormones derived from the ductless glands there are interesting chapters on the other hormones, the antihormones and the vitamins. There are excellent chapters on obesity, menstruation and its disorders, the menopause, pregnancy and sterility with much sound clinical advice regarding the management of these conditions. Following these are chapters on the endocrine aspects of nonendocrine diseases such as surgical and orthopedic diseases, diseases of children, nervous and mental diseases, diseases of the autonomic nervous system, diseases of the gastro-intestinal tract, diseases of the cardiovascular system, diseases of the skin, allergic states and diseases of the oral cavity.

There are excellent chapters on history taking, the evaluation of information received, things to look for in the examination, the choice and description of diagnostic procedures in endocrinopathic conditions, symptom diagnosis by systems, a description of a great many not too difficult laboratory procedures, the interpretation and evaluation of laboratory findings and the use of endocrine preparations for their pharmacodynamic action.

There is a valuable reference chapter listing modern endocrine preparations with a description and dosage of the commercially available endocrine products.

Each chapter has a brief outline summary at the end which may be used as a means of easy reference or to make possible a quick review. The volume is carefully indexed making it a ready reference. No bibliography is given. There are a reasonable number of photographs and drawings.

This book has been so arranged as to provide the practitioner with a full and useful knowledge of clinical endocrinology. It covers the subject thoroughly. This revised edition has some new sections and describes many recent steps in this field which are carrying endocrine diagnosis and therapy gradually into more accurate and definite grounds.

The reviewer does not know of a more valuable book on this subject. Every practicing physician would profit by acquainting himself with this volume.

J. H. J.

THE PATIENT IS THE UNIT OF PRACTICE. By Duane Willard Propst, A.B., B.S., M. D., Assistant Professor of Medicine, University of Illinois, College of Medicine. Springfield, Illinois, Baltimore, Maryland: Charles C. Thomas, Publisher. 1939. Price \$8.00.

Dr. D. W. Probst, assistant professor of medicine at the University of Illinois, presents a medley of impressions. In general he is concerned lest the patient be treated other than as an individual with emotional and intellectual disequilibria as well as the physical disequilibrium labeled disease. From this point of view the first part of his book constitutes a contribution to medical thought. The second part of the volume discusses the process of making a diagnosis. Here the material is too scant to offer much assistance either to the student or to the practitioner. Finally, in the third part the principles of therapy are presented with particular emphasis on symptomatic and psychic treatment.

B. Y. G.

GENITAL ABNORMALITIES: HERMAPHRODITISM AND RELATED ADRENAL DISEASES. By Hugh Hampton Young, M.A., M.D., Sc.D., F.R.C.S.I., D.S.M., Professor of Urology, The Johns Hopkins University, Visiting Urologist Brady Urological Institute, The Johns Hopkins Hospital. With 379 plates containing 534 drawings by William P. Didusch. Baltimore: The Williams & Wilkins Company. 1937. Price \$10.00.

"Genital Abnormalities" by Young is a comprehensive treatise on the difficult subject of related genital abnormalities together with the sexual disturbances that accompany them. It is a very complete discussion of hermaphroditism including all types, true and false, and the story of hermaphroditism in art. It describes a wide range of sexual abnormalities with new methods of surgical intervention, plastic repair and clinical treatment. It explores the mysteries of the borderline between the sexes and discusses extraordinary personalities. It is a biological document and a human document as well. Five hundred thirty-four original drawings illustrate the book.

S. S. B.

CANCER OF THE BREAST AND CANCER OF THE UTERUS. By Marion Ellsworth Anderson, A.B., M.D., Clinton, Iowa. Second edition, 1939.

This is a handbook for nurses and the laity. It contains a synopsis of the opinions of several surgeons and pathologists interested in cancer study. It also has observations and theories of the author on etiology and various phases of treatment. The reproductions of photographs and diagrams of gross and microscopic sections of cancer are the best things in the book.

E. K. R.

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THE MALE SEX HORMONE

W. MERRITT KETCHAM, M.D.

KANSAS CITY, MO.

HISTORY

From time immemorial man has attempted male sex gland therapy. In the first century A. D. we have records of male impotents using the testes of sheep as food in the hope of attaining sexual vigor and strength. This was due mainly to the recommendations by Mesue that the gonads could be used as an aphrodisiac. For many centuries thereafter the testes of various animals were used extensively as an aphrodisiac and for general stimulating purposes. It was in 1776 that Bordeu attributed to the testes the function of sexual development and sex characteristics. Also in the 18th century Haller stated that there was a substance or secretion from the testicle which was excreted into the blood and produced growth of the beard and of the sexual organs in males. In 1850 Franz Leydig first described the interstitial cells of the testicle as follows: "They contain lipid granules in their cytoplasm. They bear resemblance to some cells of the suprarenal cortex. In the four-month-old embryo when sex differentiation becomes apparent they occur in large numbers. At birth they are fewer in number. At puberty they are abundant and they diminish in number during the male climacterium. They occur between the seminiferous tubules, arranged around the blood vessels and lymphatics." In 1903 Bouin and Ancel showed that ligation of the vas deferens in animals halted spermatogenesis but that the interstitial cells proliferated. This observation in the course of events was responsible for the observation of Steinach and later the so-called Steinach's operation, or the rejuvenation operation. Transplantation was first attempted in man by Hammond and Sutton in 1912 but, up to date, this type of operative procedure has been followed only by variable periods of sexual excitement. Until recently testicular extracts have been so impure and of such low potency that they have been inadequate and have produced no significant results in man.

It is not possible in a paper of this kind to indulge in a complete discussion of the recent biochemical research into the extraction, or synthesis, of the androgens. For a complete discussion the reader is referred to the recent masterly review by Koch. However, certain facts are of distinct interest. Only twelve years ago McGee was able to extract from human male urine an androgenic male substance which would repair the atrophy of accessory sex organs in castrated animals and promote comb growth in the capon. Funk and Harrow further improved this method by using chloroform for extraction. In 1930 Gallagher extracted an androgenic substance from the blood of bulls, and in 1931 by using acid hydrolysis he obtained a high yield of androgenic substance from normal human male urine. Four years ago Gallagher and Koch demonstrated that the extract of bull's testes had approximately ten times the potency of the urinary extract, and pointed out the significant fact that the testicular extracts were destroyed by alkali, whereas the urinary extracts were not affected. From then on the work progressed rapidly, and one development followed another. It was next shown that the testicular extract was definitely different from the urinary extract. The urinary extract was called androsterone and almost immediately Butenandt announced the chemical formula of androsterone. Only a few months later, Ruzicka and his coworkers were able to prepare the same substance by the chemical degradation of cholesterol. In 1935, David, Lacqueur and their coworkers reported that they had obtained a crystalline substance of exceptional potency from extraction of bulls' testes. This substance was called testosterone. Almost immediately afterward Butenandt and Hanisch were able to produce a chemical compound synthetically which was identical in chemical, physical and biological properties with Lacqueur's testicular extraction, testosterone.

ANATOMY AND HISTOLOGY

The testes arise from celomic epithelium which proliferates and forms the germinal epithelium. The underlying mesoblast thickens and forms the genital ridge. The seminiferous tubules develop from the epithelial cells and the stroma and the vascular tissue arise from the mesoblast. Included

in this stroma are the cells of Leydig, or the interstitial cells.

Spermatogenesis takes place within the tubules. Proliferation of the spermatogenic cells is stimulated by the pituitary gonadotropic hormone as well as the cells of Leydig. We now believe that the comb stimulating factor is produced in the cells of Leydig but not stored, the pure hormone being carried off into the blood producing its action and in the process being broken up and eliminated in various forms.

CASTRATION

Loss of the interstitial cells in the young is usually followed by sexual infantilism and in the adult by loss of the sex urge, sex functions and gradual loss of most of the secondary sex characteristics. Best and Taylor state: "Castration of male frogs prevents the appearance of the sexual changes which normally occur during the mating season. The sexual development of birds and mammals is profoundly affected by castration. The castrated Leghorn cockerel (capon) has a greater proportion of body fat than the normal bird, while the comb, wattles and barbles and the sex instincts do not develop. Castration of young bulls causes an increase in size of the skeleton and a greater deposition of fat. The mature development of the accessory organs is prevented. Castration of boys before puberty retards ossification of the epiphyses of the long bones with consequent enlargement of the stature. The lower limbs become disproportionately long. There is also adiposity, the fat tending to become feminine in distribution. The larynx is not prominent as in the mature male and the voice remains high pitched. The hair fails to grow upon the face and body but is plentiful on the head. The penis remains infantile, sexual feeling is suppressed." Following gonadectomy, the pituitary gonadotropic hormones are found in the blood and urine in greatly increased amount. The pituitary gland enlarges. The basophils of the pituitary increase in number and many become enlarged and distended with a clear fluid with the nucleus pushed to one side producing the so-called "signet-ring" or "castration cells." The injection of potent extracts reverses the pituitary picture to normal. It has been discovered that removal of the gonads, either male or female, is followed by an increased output of the pituitary gonadotropic hormone. This picture also occurs in the menopause of both males and females and is now considered to be one of the main causes for the assortment of nervous symptoms associated with the menopause.

USE OF THE MALE SEX HORMONE IN HUMANS

Only in the last year and a half have we had opportunity for observation as to the effects of testosterone propionate in the human male. A review of the recent literature has indicated a widespread and intensive interest in this subject. The main indications so far and for which good results are claimed

are as follows: (1) hypogonadism, (2) benign prostatic hypertrophy with excessive nocturia, (3) the male climacteric, (4) impotence, (5) functional uterine bleeding in the female, (6) inhibition of lactation during the first few days after delivery, (7) severe menopausal symptoms in the female castrate (surgery or radiation).

HYPOGONADISM

Marked degrees of hypogonadism are readily recognized but the etiology is often obscure. Cases at the present time appear to fall into two groups: (A) Primary testicular insufficiency due to castration, atrophy following trauma, atrophy following mumps or some inherent difficulty in the testes themselves. (B) Gonadal insufficiency secondary to demonstrable pituitary deficiency or evident lack of the gonadotropic hormone with no demonstrable pituitary deficiency. The question as to whether testosterone propionate should be used prior to puberty is one that is still open for study. Some men claim that by its use the anterior pituitary is inhibited to such an extent that it is not possible for the testicle to continue functioning or the cells of the testicle to remain normal after the androgenic substance is removed. There is no question, however, but that the material will produce early puberty in the male child characterized by changes in the larynx, growth of the phallus and scrotum, development of pubic and axillary hair and spermatogenesis. A recent report on this subject appears in the November 1938 issue of *Endocrinology*, page 661. The author closes his remarks with the following paragraph: "In view of the results obtained in these young patients, the danger of administering potent androgenic substance to young individuals should be realized."

The best results have been reported in postpubertal conditions. The effects noted in practically all cases have been reported as follows: growth of the phallus, scrotum, pubic and axillary hair, increase in the number and power of erections, and in the amount and character of ejaculations. The dosage has been variable. The material is on the market in three sizes, 5 milligrams, 10 milligrams and 25 milligrams. Many cases were treated daily on 10 milligram doses and later as infrequently as every four days to a week. Others required 25 milligram doses. In all cases, if the medication was withdrawn, the former condition recurred with the exception that the phallus never reverted to its previously small size. Practically all patients reported that resumption of treatment was followed by a response similar to that of previous treatment.

BENIGN PROSTATIC HYPERTROPHY WITH EXCESSIVE NOCTURIA

Numerous articles are appearing dealing with this condition. Some extravagant claims are made but most of the authors are content to state that following the use of testosterone in these cases, frequent nocturia has been markedly relieved with-

out demonstrable decrease in the size of the prostate. Time and careful consideration of the reported cases will eventually decide the efficacy of this procedure.

THE MALE CLIMACTERIC

The effects of testosterone are most striking in the male climacteric. The nervousness, sweating, hot flashes, psychological states such as despondency, melancholia and manic-depressive tendencies have been relieved markedly. The dosage necessary in these cases is not as large as when definite anatomical changes are being undertaken. In these cases the effect is two-fold, a direct stimulation by the male sex hormone and a direct inhibitory effect upon the gonadotropic cells of the anterior pituitary.

IMPOTENCE

Most cases of impotence constitute, primarily, a testicular inadequacy to which is added, by the presence of the impotence, a marked psychological trauma. In my own experience, testosterone propionate has been successfully used in three cases. The necessary dosage in these cases was 30 milligrams weekly and at the end of from four to six weeks of treatment plus some psychological encouragement, sexual activity was possible. In all these patients withdrawal of the medication resulted in return of the impotency in from two to four months. The return of the impotency was not psychological as the men were not aware that the material had been discontinued.

UTERINE FUNCTIONAL BLEEDING

In an article entitled "Use of the Male Sex Hormone in Functional Bleeding of Females," Geist, Salmon and Gaines argued that if testosterone propionate produced such a marked inhibitory effect upon the gonadotropic factors of the pituitary, it should result in a suppression of the ovarian cycle and, thus, an inhibitory effect upon the uterine endometrium. They have reported twenty-three cases in which the dosage varied from 300 to 800 milligrams monthly and in which the desired effect was produced and functional uterine bleeding controlled. Other reports are appearing singly and in numbers throughout the country. We are treating four cases at present and as yet the results have not been satisfactory.

INHIBITION OF LACTATION

Kurzrok and others working on the hypothesis that testosterone propionate is a direct inhibitor of the gonadotropic cells of the anterior pituitary, have been using this material to inhibit lactation. Some thirty to forty cases are now reported in which lactation has been promptly stopped without the usual symptoms of pain, fullness, engorgement or lumpiness of the breasts in from forty-eight to sixty hours with dosages varying from 100 to 150 milligrams.

SEVERE MENOPAUSAL SYMPTOMS IN THE FEMALE CASTRATE

Cases have been reported by Kurzrok, Birnberg, Livingston and others in which treatment of the menopause by the use of estrogenic substances was undesirable. The male sex hormone, having no effect upon the endometrium of the female, was considered as possibly an ideal material. A large number of cases have been reported to the present time and many of them extremely intractable so far as relief of symptoms is concerned under estrogenic substances. These particular cases, under testosterone propionate in doses varying from 30 to 50 milligrams weekly have become free of symptoms.

In closing, it may be interesting to review from the literature the reported observations in some two hundred cases following the use of testosterone propionate:

1. Increased libido.
2. Increase in vitality and a great lessening of the fatigue syndrome.
3. Increase in the size of the phallus, scrotum and seminal vesicles within the limits of the normal variation.
4. Increase of hair on the pubis, axillae, extremities and beard development.
5. Lower voice in cases where the voice was high-pitched and effeminate.
6. Definite psychological changes. Patients become less bashful, develop an optimistic outlook with increased self confidence and other masculine traits.
7. A gain in weight in almost all reports. Some cases reported as much as from thirty to forty pounds gain in from six months to a year. This occurred especially in the underweight patient with eunuchoid type of hypogonadism.
8. Definite changes in the skin. The skin became oily, there was an increase in sebaceous secretion and many clinicians are reporting the development of acne vulgaris. This observation may be valuable in the future in explaining the development of acne near the ages of puberty in boys and girls.

REPORT OF CASES

IMPOTENCE

Case 1. Male, aged 38 years, complained of impotence present since his marriage a year previously. Patient was approximately thirty pounds overweight, having a definite shoulder and pelvic adiposity and pubic fat padding. Examination of the genitalia showed a normal sized phallus and the left testicle considerably larger than normal and quite soft. The right testicle was more nearly normal in size and appearance. A moderate varicocele was present on both sides. His basal metabolism was 1. He had a normal glucose tolerance curve and a normal blood picture. Blood calcium was 10 mgs. and blood cholesterol 212 mgs.

A tentative diagnosis of anterior pituitary insufficiency with secondary testicular inadequacy (moderate Fröhlich syndrome) was made.

The patient was given 10 milligram doses intramuscularly of testosterone propionate three times weekly.

Twenty-nine doses were given over a period of sixty days when the patient suddenly stopped coming to the office. Inquiry disclosed that he felt that he was perfectly well. He was having intercourse regularly and his wife informed me that she was then two months pregnant.

After a six month withdrawal period, the patient returned with the same symptom of impotence and requested additional treatment.

MALE CLIMACTERIC

Case 2. Male, aged 57 years, weighing 168 pounds came to the office in July 1938 complaining of unusual nervousness, frequent attacks of hunger sensations, a large number and variety of gastro-intestinal complaints, unusual fatigue, inability to concentrate and sweating. Examinations gave normal findings.

Tentative diagnosis was male climacteric.

Patient was put upon alternate doses every other day of testosterone propionate and anterior pituitary and testicular extract. The patient now reports approximately once every seven to ten days and states that he feels well. He is able to carry out his work and does not have the symptoms that he previously complained of. His blood pressure has dropped from 178/90 to 140/80 and clinically the patient is well.

Case 3. Male, aged 53 years, came to the office in January 1939. His chief complaints were unusual nervousness, jittery sensations and many and varied gastro-intestinal complaints. This patient had been an active man in business but due to mental depression and extreme nervousness he had been unable to carry on his business for the last two and one-half years.

A complete examination revealed nothing except an old healed duodenal ulcer.

The patient was placed on testosterone propionate, 10 milligrams every third day. In less than five weeks the patient reports practically complete relief. His gastro-intestinal symptoms have subsided. He is able to eat regularly and he has gained 9 pounds in weight. His despondency and melancholia have disappeared and he feels "cured."

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RUMANIA HAS 1,074 CENTENARIANS

There are 1,074 persons over 100 years of age in Rumania, according to figures published in a book by The Central Statistical Institute, the regular Bucharest, Rumania, correspondent of *The Journal of the American Medical Association* reports in the October 14 issue.

PNEUMOPERITONEUM

WITH AN UNUSUAL COMPLICATION

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The history of pneumoperitoneum dates back to 1895 when it was first tried for tuberculous ascites. As the fluid was withdrawn the air would enter incidental to the procedure and it was found that subsequently the symptoms were relieved.

In 1909, following operative discovery of intestinal tuberculosis, doctors began injecting oxygen as they closed the abdomen. Three* cases so treated had relief from symptoms and, upon return of symptoms, were again treated with oxygen and were relieved.

In 1920 Rost treated three cases of tuberculous peritonitis by the introduction of air into the peritoneal cavity and found that pain and fever were improved. By 1930 its usage became more common and various gases were tried with about the same results. Today we know that ordinary air works as well as any of the pure gases.

Banyai, in 1931, published his findings on the use of pneumoperitoneum *per se* in forty-four cases and three years later reported on pneumoperitoneum in conjunction with phrenic nerve paralysis.

Centofoudi, in 1936, reported nineteen cases of pulmonary tuberculosis treated with pneumoperitoneum and also recommended the use of surgical phrenic paralysis.

Frimble and Ward published their reports in 1937 and advocated the use of the abdominal binder.

In 1938 Hobby reported nineteen cases. Stokes in 1938 published his work in which he made definite measurements upon the roentgenogram of the range of elevation of pneumoperitoneum and pneumoperitoneum both preceding and following phrenic nerve paralysis.

Angello found by taking electrocardiographic tracings before and following pneumoperitoneum that pneumoperitoneum caused a definite increase in the pause between two consecutive atrioventricular complexes, the pause being attributed to the prolongation of the T P space and alteration of the R, S and T waves in all three leads.

In our opinion, pneumoperitoneum has earned a definite place in the armamentarium of the phthisist and, as we are better able to determine its locale,

*Twenty four cases of pneumoperitoneum have been instituted since the analysis in this article and a brief study of these additional cases affords further insight into its value. The cases were as follow: Nine of compression pneumoperitoneum *per se* with two unimproved; twelve phrenicotomy reinforced by pneumoperitoneum with one unimproved; one pneumoperitoneum followed by phrenicotomy with none unimproved; two pneumoperitoneum for intestinal disease with two unimproved.

The group of nine is composed of cases with bilateral disease with seven cases continuing to improve and no change in two. The second group had unilateral disease, mostly basilar or midlung with but one case showing no change, the cavity in this instance being located close to the heart. In the third group pneumoperitoneum has been abandoned in favor of phrenicotomy in order to enable the patient to return home. In the fourth group, one case was of acute intestinal disease precipitated or reactivated by thoracoplasty.

it will in turn become more and more valuable. Our results in the last three years have far overshadowed those of the preceding three years and we have been able to determine indications and limitations better. In other words, we no longer consider pneumoperitoneum an experimental procedure.

In this paper I will limit my observations to the compression portion of the treatment and the presentation of an unusual complication.

TREATMENT

At the present time at the Missouri State Sanitarium we have adopted a standard procedure of treatment, varying slightly to individualize the treatment. Using standard pneumothorax equipment we anesthetize the skin and using a 16 or 18 gauge, 2 inch needle we enter the peritoneal space, using a stream of novocain solution to precede the point of the needle, then removing the syringe and attempting to inject either novocain or air, we confirm our position. After a few treatments one becomes adept at determining the position of the needle point.

We prefer the rectus muscle since we are better able to identify the fascial planes. The initial treatment is usually from 300 to 400 cc., giving from a plus four to a plus eight pressure (in cm. of H_2O). The patient is then rolled so that the unaffected side is down thus permitting the air to migrate beneath the portion of the diaphragm of which we desire the greater elevation. The patient is then slowly raised to a sitting position.

Upon assuming the upright position there is a sudden subcostal pain rapidly transferring itself to the shoulder and neck which is controlled by a mild sedative. The subphrenic space is potentially a vacuum and, as the air separates the liver and diaphragm, the phrenic nerve endings in the diaphragm are stimulated and the pain referred to the shoulder and neck. This process is repeated each time if sufficient aid has not been given to maintain the separation from one treatment to the next. Following several treatments there is usually a rapid and successful relief from the distress.

In subsequent treatments, repeated at biweekly intervals, we slowly increase the amounts of air to 500 cc. Subsequent roentgenogram and fluoroscopic examinations determine when we have attained the maximum elevation for the time being.

Were we to continue giving massive amounts of air, we would succeed only in depressing the liver and increasing the discomfort of the patient. Even though on fluoroscopic examination we apparently were increasing the elevation, closer study by roentgen ray would reveal that we had only increased the space between the liver and the diaphragm, the air dissecting downward along the lateral colic gutters.

I do want to emphasize the necessity of giving moderate amounts of air since we find that by this method we can eliminate the pain and mental

distress as well as effecting in the patient an increased sense of well-being and improved appetite with gain in weight.

Usually, after the third or fourth treatment, there is no further discomfort except when we fail to anesthetize the peritoneum properly. The patient finds his cough less frequent and for the time being more productive, frequently with a definite change in the type of sputum since there is an improved drainage and a decrease in the amount and character of the secondary infection.

Respiration improves as there is a relaxation of the scar tissue and, as this occurs, the blood is shunted through the less involved portions of the lung and there is an improved oxygenation of the blood resulting in generalized improvement.

Occasionally we find a transitory elevation of temperature due perhaps to a pocketing of pus within the kinked bronchi. This will be avoided if the elevation is not pushed too rapidly.

Abdominal compression causes an emptying or decrease in the splanchnic reservoir and the lymph within the cisterna chyle resulting in increased rate of circulation, thus giving better nourishment and augmenting fibroses.

At the Sanitarium, as perhaps everywhere else, patients selected for pneumoperitoneum are those too sick for pneumothorax or those in which other treatment has been unsuccessful. We feel that this type of patient offers a good prognosis of the success of pneumoperitoneum in that the sthenic or hypersthenic patients have better elevation while the asthenic have the firm, fixed diaphragm which results in little elevation.

In 1936 we tried the appliance which was too serve as a diaphragmatic lift and found that it had little effect upon the course of the disease and, since it could be used only in the obese or heavily muscular type, we soon abandoned it in favor of pneumoperitoneum. But we did find that by using the common two-way stretch girdle we could decrease both the amount and the frequency of treatment and secure greater elevation of the diaphragm and since have used the girdle nearly routinely. We believe its service lies in that it maintains a constant pressure in either a standing or reclining position and replaces the lost musculature of the abdominal wall of the debilitated patient in whom pneumoperitoneum is most frequently indicated.

Banyai has proven that there is from 10 to 15 per cent decrease in thoracic capacity, being greatest on the diseased side. Stokes, by careful measurements, finds a definite elevation, usually highest on the diseased side.

The fibrotic type of disease responds favorably while the exudative type is frequently made worse and rapid excavation or cavitation follow. I have seen two instances where the patient was allowed to rest for several months and apparently fibrosis had begun, yet, when treatment was attempted, large apical cavities were rapidly excavated.

In the first we thought elevation had been too rapid, and in the second the amounts administered were always below the average; yet the same results occurred.

The excessively productive case will usually respond rapidly resulting in a change in type and character of sputum and ease of expectoration.

There is no special age limit, the older patients tolerating pneumoperitoneum as satisfactorily as those in the younger brackets. Here is offered, however, an excellent opportunity to study the older patient prior to either phrenic nerve paralysis or thoracoplasty, although I believe the direct injection of the nerve offers the better test since its effects are better controlled. Should necessity arise, the air can be rapidly removed by aspirating from the subphrenic space, especially if adhesions, either tuberculous or postoperative, are present.

We are well aware that not all abdominal pain, even in far advanced cases, is due to tuberculous enteritis and that a large area of ulceration may be free from symptoms while a small area located close to one of the valves may give intense pain. At the same time, lymph nodes in the area of the controlling nerve plexuses may give all types of symptoms and intense cramping with no ulceration present.

Typical dyspepsia, with or without nausea and vomiting, is usually motor in etiology and is the result of the encroachment of the inflamed and enlarged lymph nodes upon motor plexuses. Its effect may be upon the stomach mechanism or upon the secretory activity. The food is rushed into the bowels leading to a diarrhea or is stagnated, due to pylorospasm, and fermentation and vomiting result. It may also influence the finely balanced coordination and rhythm of the entire intestinal tract so as to cause either the peristaltic rush, with the accompanying cramping and diarrhea, or the retardation of the peristaltic motion and the resulting flatulence and cramping.

Ulceration usually confines itself to the terminal ileum and the first part of the large bowel. Common symptoms are usually confined to the lower right quadrant and transverse colon. Here, too, we find a disturbed motor function, or gradient, and the entire bowel mechanism involved. Food coming in contact with the raw areas irritates the ulcer. Nature attempts to help by rushing the food past, resulting in a spasm of the involved area. This results in diarrhea cramping and the impulses persist until the entire tree is involved with flatulence, nausea and vomiting.

Frequently, we find the patient comfortable until he eats. With the ingestion of food and the initiation of peristalsis, pain follows. Less frequently, we find the hypertrophic type in which there is an extreme thickening of the proximal cecum and ileocecal valve and no food can pass. This results in the stagnation of food in both the large and small bowel and the resulting tympany, constipa-

tion and extreme toxicity. The hypertrophic type is more insidious in onset and is thought to be primary in origin.

Pneumoperitoneum has been used with moderate success in treatment of peritonitis, appendicitis and salpingitis. It relieves some of the symptoms, giving temporary relief, but unless the primary focus improves no great permanent benefit is derived.

MECHANISM OF TREATMENT

The mechanism of pneumoperitoneum in intestinal disease is still a moot question and various theories have been employed to explain its action. We are of the opinion that it is mostly mechanical in nature and acts as a buffer to the inflamed surfaces and prevents their coming together, thus precluding the formation of adhesions. Even though pneumoperitoneum may have no curative effect, it gives symptomatic relief and often reestablishes nutrition, thus giving nature the material and opportunity to effect a cure.

I would like to present another theory of the effectiveness of pneumoperitoneum, by assuming that the subdiaphragmatic space is a potential vacuum and that the liver and abdominal viscera, because of this negative pressure, retard the upward movement of expiration. We have observed the atrophy and decrease in thoracic capacity, the liver acting as a wedge (how frequently have we not all seen the costal indentations deeply imbedded in the liver substance?) and pneumoperitoneum neutralizing the negative pressure, permitting the upward excursion of the diaphragm.

Pneumoperitoneum for compression purposes is given in the same manner, the amounts being larger and usually with complete disregard for the possible secondary tuberculous intestinal complications. We usually find the patient first losing weight and appetite. His pressure depends upon the results obtained.

Pneumoperitoneum *per se* has given us most gratifying results, especially when one realizes that the disease is bilateral and usually with extrapulmonary complications. As might be expected, the improvement is much slower and the patient will need encouragement from time to time.

Occasionally we encounter a chest that is apparently free of disease but which has an annular shadow, usually within the hilar area, with a few accompanying physical findings. One hesitates to induce pneumothorax since if the shadow is an artefact and the lung later on breaks down we would be unable to re-establish pneumothorax. A few centimeters elevation will make possible the diagnosis and we know that pneumoperitoneum can be re-established at any time.

As an instrument for the control of hemorrhage we find that pneumoperitoneum is usually too slow to be effective even though we instill massive doses of air. The bleeding is usually from the hilar or apical areas and, since the pleura is adherent, transmission of the compression is too slow.

In conjunction with phrenic nerve paralysis, pneumoperitoneum offers its greatest benefit. Only too often we see what is apparently an ineffectual phrenicotomy with deep inspiration. After a few treatments by pneumoperitoneum the diaphragm is separated from the liver and rapidly moves upward and becomes motionless.

Following phrenic nerve paralysis the air rapidly localizes beneath the paralyzed diaphragm and the contralateral diaphragm falls slightly. Therefore, phrenicotomy should not be done unless we have accomplished the desired results in the contralateral lung. In cases with insufficient elevation, a course of pneumoperitoneum will result in a secondary elevation invariably greater than the primary elevation. Phrenicotomy following pneumoperitoneum increases the elevation but to a lesser degree than in the former case.

Occasionally we see paradoxical respiration that is a definite detriment to the resting of the lung. Here, too, we find that pneumoperitoneum will rapidly decrease if not stop the motion of the diaphragm thus hastening muscular atrophy and stabilizing the diaphragm.

Perhaps no procedure is more valuable in the treatment of basilar tuberculosis in that it exercises maximum pressure directly on the involved area. In conjunction with pneumothorax, it places the lung absolutely at rest. In our experience pneumothorax has been almost valueless in this type of disease. Coupled with phrenic nerve paralysis, pneumoperitoneum makes one of the most difficult types of disease relatively simple to handle.

In those cases of bronchiectasis in which we have instituted pneumoperitoneum, we find there is a definite decrease in the frequency and severity of cough and better evacuation and drainage.

In conjunction with thoracoplasty, we do not advocate the use of pneumoperitoneum during the surgical procedure. We have had three* cases and have not been impressed with its benefits. In one case with established pneumoperitoneum which hemorrhaged following operation, we found that pneumoperitoneum had little or no results. In another case in which there was apparent disease still present, for which the patient refused further surgery, pneumoperitoneum effectively cleared the diseased area.

In one case of empyema, in which the apical portion re-expanded while the lower lobe did not, pneumoperitoneum, followed by phrenicectomy, successfully obliterated the empyema pocket.

Autopsy on seven cases failed to show any evidence of chronic peritonitis. In fact, it was impossible to determine on the peritoneal surface where the treatments had been given.

We were unable to induce pneumoperitoneum in only one instance. Severe pain localized in the treatment area with a resultant high manometric pressure. At no time were we able to find evidence of cutaneous emphysema.

In one case of bilateral disease with a 3 centimeter cavity in the subclavicular area, pneumothorax being unsuccessful, pneumoperitoneum was instituted and on the fifth treatment the patient had a minor hemorrhage. Upon increasing the pneumoperitoneum the bleeding increased and upon removing a portion of air the bleeding stopped. Minimal amounts of air were then given for a short time followed by larger amounts only to encounter the bleeding again. Examination under the fluoroscope showed the cavity flattened out, evidently suspended between hilar structures and the lateral chest wall, and attempts at elevation resulted in tears of the cavity wall.

PNEUMOPERITONEUM COMPLICATED WITH PERFORATION OF THE DIAPHRAGM AND ESTABLISHMENT OF PNEUMOTHORAX

REPORT OF CASE

A white female, aged 16 years, gave a family history positive for tuberculosis. A sister had died at the Sanitarium the previous year in spite of rest and active treatment. Onset of the disease in the patient was about three months prior to admission to the Sanitarium with pulmonary hemorrhage, weight loss of 20 pounds, cough, expectoration, night sweats and repeated hemoptysis since initial hemorrhage. Physical examination showed disease in both sides of chest and no gastro-intestinal or other extra-pulmonary abnormal findings.

Sputum was positive for tubercle bacilli, Gaffky plus 4, and bloody in the morning. Urine showed a trace of albumin; Wassermann was negative; sedimentation (Cutler) 29; lymphocytes 15; monocytes 10; red blood cells 4,400,000; hemoglobin 63.

Roentgen ray showed dense infiltration of the upper two thirds of the right lung with annular shadow within the apex measuring 3 centimeters; diaphragm was peaked and rough. The left lung showed a dense to moderately dense infiltration involving the lower two thirds of the lung field. Costophrenic angle was blotted out. The case was classified as pulmonary tuberculosis, far advanced, B, and prognosis unfavorable.

Because of repeated blood spitting and since the left lung had improved somewhat, right temporary phrenic dissection was done on May 21, 1938. In August 1938 the patient had two moderate hemorrhages and pneumoperitoneum was established on September 17, 1938, with the following record: September 17, 300 cc. pressure plus 2; September 18, 400 cc. pressure plus 6; September 19, 500 cc. pressure plus 10; September 24, 400 cc. pressure plus 8; October 7, 300 cc. pressure plus 4, with temperature 99.66 and pulse 118.

On October 8 the patient had a chill with temperature 105 F., pulse 160 and respiration 36. She complained of pain in the right upper quadrant. Chest examination showed hyperresonance in the lower half of the right lung, bronchial breathing, no rales except in apex. The left lung showed impaired resonance throughout. Breath and whispered voice sounds were increased. Cardiac apex was shifted to the left. There was no abdominal tenderness. Liver dullness was depressed downward. Diagnosis was spontaneous pneumothorax. Pneumothorax pressure was positive, plus 2, plus 6.

Her condition remained critical for the next ten days, after which the temperature, respiration and pulse slowly declined. On the fifteenth day roentgenogram showed pneumothorax with fluid just covering the diaphragm and another fluid level about 10 centimeters inferior, obliterating the lower boundaries of the pneumoperitoneum. Aspiration of the pneumothorax and

Table 1. *Résumé of Cases*

Total number of pneumoperitoneum cases	98
For intestinal disease	27
For pulmonary compression	71
Condition following pneumoperitoneum alone, improved	22
Pneumoperitoneum plus phrenic	10
Pneumoperitoneum plus thoracoplasty	13
Unimproved	21
Expired	5

pneumoperitoneum showed the same pressure. Increasing the pneumothorax pressure simultaneously increased the pneumoperitoneum pressure. By placing the patient in the exaggerated Trendelenberg position it was possible to transfer the pneumoperitoneum fluid to the thorax and upon standing, the fluid returned to the abdomen. The patient continues to improve.

In the treatment of about one hundred cases, over a period of three and one half years, we have had little or no ill results until about three months ago. In a search of the literature covering the last ten years, the complications listed were more or less minor in character. Transitory pain upon the induction of treatment has been discussed elsewhere. Dyspnea has occurred rarely in cases in which the treatment was given within the regular course but did occur in those cases where it was induced for hemorrhage. As a rule we found improved ventilation and easier breathing. Cough and expectoration invariably improved.

Hemoptysis occurred in a few cases but upon giving additional air no further hemorrhages occurred. Nausea and vomiting occurred in two cases, extending over a period of twenty-four hours. In each case the maximum elevation was on the left side and the elevation of the diaphragm was more than 5 centimeters. The appetite was unchanged and usually improved as the treatment was continued, although the weight gain in the average case was very slow. Approximately half of the cases first lost weight and then slowly regained the weight they had lost. In about 5 per cent of the cases there was an immediate weight gain.

Menstruation was interfered with in only one case, but this patient has had no subjective symptoms. Amenorrhea is still present, though treatment has been discontinued for five months and the disease is quiescent.

Small atelectatic areas can be seen with the initial rise, but clear rapidly. Massive atelectasis has not been apparent.

We doubt that atrophy of the diaphragm should be called a complication, but rather that we should welcome it as it would facilitate the elevation, except, of course, if it should occur on the side of the better lung.

Subcutaneous emphysema has occurred on one occasion causing only transitory discomfort which was completely absorbed in forty-eight hours.

Air emboli occurred on one occasion when the patient sat up and was described as sudden vertigo with impaired vision of the left eye. Syncope symptoms persisted for about five hours followed by right temporal and frontal headache lasting

Table 2. *Final Results of Improved Group*

Sputum negative for bacilli	16
Partial treatment completed	12
Untreated but necessary	14
Expired following thoracoplasty	3

about twenty-four hours. No permanent damage can be found.

Adhesive peritonitis was found in two cases, both of which were being treated for severe intestinal infection, persistent diarrhea and cramping. At postmortem examination the intestines were found to be matted together in their entirety, the omentum covering the entire matted mass, its inferior margin fixed and adherent to the pelvic structures, but not adherent to the parietal peritoneum of the anterior abdominal wall the parietal peritoneum being about a half centimeter thick and fairly smooth.

Although we realize that our present series is not of sufficient magnitude to justify our forming a final verdict, we do believe our results justify continuing this type of therapy. We do not submit it as a choice of therapy over pneumothorax nor do we believe that it is indicated in all cases where pneumothorax can not be established.

In those cases of far advanced disease where cavitation is not too extensive, and where rest alone has not given the desired and hoped for results, we feel that pneumoperitoneum should be employed until such time when more permanent treatment can be instituted.

In conclusion, we believe that pneumoperitoneum is indicated as follows: when disease is too extensive to establish pneumothorax at the time; pneumothorax cannot be established; disease is basilar in character; pneumothorax is unsuccessful because of diaphragmatic adhesions; phrenic nerve paralysis has not given the desired results; excessive paradoxical motion following phrenic nerve paralysis exists; excessive cough with difficulty in raising sputum is experienced; pulmonary tuberculosis complicated with intestinal disease is found; and in bronchiectasis.

We believe the complication reported is unusual and in going over the literature for the last ten years we can find no other incident similar to it; in fact, the outstanding feature of this form of therapy is the rarity of cases in which complications are encountered.

With the exception of one case of hemorrhage for which we believe pneumoperitoneum was responsible, the reactions have been minor in character and only transitory and we unhesitatingly recommend it in those cases where it is indicated.

Missouri State Sanitarium.

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FIBROSITIS

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ST. LOUIS

Fibrositis is the commonest type of rheumatic affection. It is a disease of the white fibrous tissue. A clear understanding of the clinical features of this disease is necessary for a proper classification of rheumatic conditions. Gowers introduced the term in 1904. Stockman described it in 1933. While the English have been writing considerably on this subject, it is only in the last few years that it has appeared in American literature. One of the reasons that some of the American arthritic clinics have been slow in adopting fibrositis as a disease entity has been the lack of pathologic study of this condition. Llewellyn and Jones described the pathologic features in 1915 but practically nothing has been done since with regard to its microscopic features.

The British Ministry of Health reports that 60 per cent of those suffering from rheumatic disease had fibrositis. Traeger reported that 262 out of 900 cases seen in the Arthritis Clinic of the Hospital for Ruptured and Crippled in New York were suffering from fibrositis.

Approximately 75 per cent of the cases seen in the Arthritis Clinic of DePaul Hospital, St. Louis, during 1938 were suffering from fibrositis.

CLASSIFICATION

1. *Primary*.—An affection of fibrous tissue independent of joint pathology.

2. *Secondary*.—The changes in the fibrous tissue are secondary to rheumatoid arthritis or specific infections producing rheumatoid-like joint involvement. It may also be secondary to trauma. The fibrositis that one sees in connection with hypertrophic osteo-arthritis may be secondary to the joint changes but we believe in many cases it is associated and purely incidental to the osteo-arthritis.

3. *Senile*.—Fibrotic changes gradually take place in old age.

This paper will deal only with those cases of

primary fibrositis and fibrositis associated with hypertrophic osteo-arthritis.

The fibrositis associated with rheumatoid arthritis is a part of the underlying joint condition. Although some cases of rheumatoid arthritis seem to start periarticularly, nevertheless, we have seen rheumatoid arthritis develop in only one of our cases of fibrositis. In this case the patient had a chronic fibrositis of her back and later developed rheumatoid arthritis of her fingers.

ETIOLOGY

There is no specific causative agent known at present. The chief predisposing factor, however, is chilling. These patients are susceptible to cold and they frequently can date their attacks to chilling of a part of the body. They are worse in cold damp weather and are sensitive to drafts. Chronic strain, dampness and nervous exhaustion are also predisposing factors. Attacks are frequently precipitated or aggravated by upper respiratory infections such as influenza and la grippe. It is quite conceivable that some unknown toxin or infection is the etiologic agent. Foci of infection may be responsible in some cases, but in our series of cases we have not been notably impressed by any foci as the cause. While we believe that definitely infected teeth, tonsils and prostates should be corrected, we heartily condemn the indiscriminate removal of gallbladders and appendices.

Fibrositis affects subcutaneous tissues, muscle sheaths, fascia, aponeurosis, articular capsules, nerves, ligaments, tendons and bursae.

COMMON SITES

1. *Neck*.—Frequent severe headaches may result from involvement of the muscles of the neck. There is generally tenderness to pressure in this region and the pain may radiate down the shoulders.

2. *Shoulder-girdle*.—There is involvement of the muscles, nerves, tendons and bursae in this region. There is limitation of movement of the arm and shoulder with variable pain.

3. *Intramuscular*.—There is pain on extremes of motion and muscular stiffness, lumbago, torticollis or involvement of muscles anywhere in the body.

4. *Chest*.—Involvement of the intercostal muscles can simulate disease of the lung, plurae and coronary disease. There is tenderness and sometimes small nodules are felt in subcutaneous tissues and muscles between the ribs.

5. *Abdominal*.—There is pain and tenderness on finger-tip pressure over abdomen. There is no muscle spasm such as occurs in intra-abdominal cases. This condition is confused frequently with gallbladder disease, appendicitis and diseases of the colon.

6. *Perineural*.—This causes trifacial neuralgia, also sciatic and brachial neuralgias.

7. *Tendons*.—Dupuytren's contracture may be caused.

8. *Periarticular*.—There is involvement of the

joint capsule and stiffness and soreness of the joint affected but movement of the joint can be made.

9. *Bursae*.

CLINICAL FINDINGS

There are two characteristic features of primary fibrositis, first, the apparent robustness and good health of the patient, and second, the typical behavior of the pain and the stiffness from which they suffer. This usually is worse when they are quiet, either sitting or in bed. When they arise there is generally marked stiffness and pain which disappears as they move about only to recur toward the end of the day. By night they usually suffer from marked exhaustion, the exhaustion being out of proportion to the general appearance of good health. There is tenderness and some spasm over the involved areas and occasionally nodules can be felt. In our experience the occurrence of nodules is much less frequent than is described by English writers. Joints may be stiff although painful movement can be accomplished.

There are no characteristic blood changes. The protein fractions, calcium and phosphorus are usually within normal limits. The red blood cells and hemoglobin are normal. In acute cases the white blood cells may show a slightly infectious picture. The sedimentation rate is increased in acute cases and is normal in chronic cases.

MORBID ANATOMY

Care was exercised in taking biopsies to obtain tissue from muscles and to avoid sites where the muscles merge into the tendons and ligaments. The acute and subacute cases showed hemorrhages, hyperemia, serofibrinous exudate between the muscle bundles, newly formed fibroblasts, mild degenerative changes in muscle, swelling and loss of cross striation and a few inflammatory cells, chiefly lymphocytes. The chronic cases showed fibrosis of muscle fascia and intramuscular septa with separation of muscle bundles, marked degenerative changes in muscles including complete loss of cross striation, hyalinization, fat between muscle bundles, lobulation of perimuscular and subcutaneous fat. In some patients that died from other diseases but who had a history of muscular pains sections through spurs of the spine and adjacent tissues were examined. In those cases that had complained of backache there was a fibrositis associated with the osteo-arthritic changes. Sections from patients that had not complained of backache showed the changes of hypertrophic osteo-arthritis of the spine but there was not an associated fibrositis. Hunt states that treatment of the fibrositis around joints may do much good symptomatically although the joint itself remains unchanged for probably half the symptoms of osteo-arthritis are due to the associated fibrositis.

TREATMENT

Treatment should be directed first to the predisposing factors. These patients must be taught to

keep themselves warm. They must wear warm clothing, avoid chilling and drafts. They must avoid both mental and physical fatigue. A certain amount of exercise is necessary but a happy medium between the proper amount of exercise and exercise that might be fatiguing must be reached. This varies with individual cases. Rest is essential in the acute cases. Any defect in posture must be corrected. Proper attention should be given to the feet and correct shoes. Obesity should be avoided.

There is no specific diet but an abundance of nourishing food with a proper amount of vitamins should be advised. Some cases need the diet supplemented with vitamins B and C. Obvious foci of infection should be corrected.

Massage is one of the most discussed forms of treatment in this condition. Scott states that deep massage causes malaise and rise of fever. He thinks that the nodule acts as a secondary focus which forces toxin into the circulation. Wilson advocates heavy massage and forceful breaking up of nodules even in rheumatoid arthritis. Hunt states that correcting foci of infection, rest, and physiotherapy produces best results.

It has been our experience that heavy massage definitely aggravates the condition producing more pain and stiffness that lasts as long as several weeks in some cases. We use massage only in the chronic cases and then a light massage.

The usual physiotherapy measures are employed as short wave diathermy, infra-red, and mecholyl iontophoresis. A useful home measure is to have the patient sit in a tub of hot water for from ten to fifteen minutes. The water should be as hot as he can stand it. Aspirin gives relief and sedatives are often helpful.

The question of vaccines is most controversial. We use vaccines as an adjunct to other measures and feel that they are beneficial. We have been using a polyvalent streptococcus vaccine prepared by Dr. H. Warren Crowe of London. The method of administration has been by the small desensitizing dose; 100,000 bacteria are administered subcutaneously as the initial dose. If no reaction occurs, this dose is continued. If a reaction such as aggravation of the condition occurs the dose is reduced to 10,000 or even 1000 bacteria. The reaction, however, is only temporary.

Some patients seem to get immediate relief from the vaccine; others experienced relief after a time. The mode of action of the vaccine cannot be explained on the basis of our biopsy findings unless the condition might be an allergic response to some bacteria or its products. The fact that chilling seems to precipitate or aggravate an attack brings up the question of whether some cases of fibrositis are a response to sensitization to cold or a combination of a bacterial sensitization that is aggravated by cold. It might be stated that normal controls given even larger doses of Crowe's vaccine showed no reactions.

The following tables give a summary of our cases.

Table 1. Summary of Cases, Sites and Results

Site	No. of Cases	Acute	Chronic	Relieved	Not Relieved
Neck	13	4	9	13	0
Shoulder-girdle	14	4	10	13	1
Intramuscular (chiefly back)	24	5	19	19	5
Chest	2	1	1	2	0
Abdominal	3	3	0	3	0
Nerve					
(a) Trifacial	3	1	2	2	1
(b) Sciatic	2	1	1	1	1
Periarticular	10	2	8	7	3

Table 2. Summary of Cases, Types and Results

Type	No.	Improved	Not Improved	Per Cent Improved
Primary	55	46	9	83.6
Secondary	16	14	2	87.5
Acute	20	19	1	95.0
Chronic	51	41	10	80.3

Our patients did not present any notable evidence of active focal infections. They were treated in the manner described. The vaccine was given every four to seven days at first, then less often depending on the response of the patient.

It is well known that roentgen ray findings of hypertrophic osteo-arthritis are frequently found in the course of examinations for other conditions and the patient complains of no symptoms associated with the osteo-arthritis. We studied a series of such cases in which spurs of the vertebrae were found in gastro-intestinal roentgenograms. These patients were questioned carefully in regard to symptoms of pain and stiffness in the back. They had no symptoms referable to their osteo-arthritis and the sedimentation rates were normal.

SUMMARY

Fibrositis should be considered a disease entity and by carefully studying the associated pathologic features one may more accurately arrive at the cause of this condition. The pathologic findings in our cases correspond more with an allergic response than an infection. A review of the common symptoms and the measures found to give most relief are discussed. The question of the associated fibrositis in osteo-arthritis being the chief cause of pain in the latter condition is considered.

Since submitting this paper for publication, we have conducted cold sensitivity tests in cases presenting a suggestive history of possible sensitization to cold. Those patients who showed positive tests were given histaminase by mouth with encouraging results. We do not wish to make positive claims as yet in regard to histaminase because of the small number of cases thus far treated. The Winthrop Chemical Company has been very cooperative in supplying histaminase for the studies.

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MISSOURI CANCER SURVEY

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SPRINGFIELD, MO.

Growing interest in the cancer problem has prompted surveys and studies in various parts of the country as basic research in planning and penetrating programs of education and service.

In 1937 the Missouri State Legislature enacted a law providing for a State Cancer Hospital to care for the indigent cancer patients residing in Missouri. This is the first institution of its kind west of the Mississippi River.

Soon after the passage of the bill, Governor Lloyd C. Stark named a Cancer Commission consisting of four members as provided by the law. The Commission was organized and the late Dr. Ellis Fischel was named chairman. The State Cancer Hospital now under construction at Columbia is named in his honor.

One of the many duties of the Commission was to determine as nearly as possible the present status of cancer in the State of Missouri. The Commission employed Mr. Bertram J. Black, St. Louis, an experienced social worker and expert statistician, to make a cancer survey of the state which was completed in September 1938 and is now in the hands of the Commission and will be published when funds are available.

I want to speak to you about some of the more important points of this survey and of what it consists. My remarks will be limited to quotations or a brief abstract of the survey, with no claim to originality of authorship and omitting all references for the sake of brevity as these will be found in the complete survey.

Let us first consider briefly the cancer mortality in Missouri. But, before trends in cancer mortality in Missouri are discussed, it might be well to note that there are slight differences in the mortality figures as compiled by the Missouri State Board of Health and those compiled by the United States Bureau of Vital Statistics. This is because each organization compiles its information from transcripts of the original death certificates quite independently of each other. Any difference in the figures of the two departments may be accounted for by possible differences in interpretation of the death certificates.

We have no records of mortality of cancer in Missouri shown in our survey from 1911 to 1920. In 1920 cancer in Missouri ranked sixth among the causes of death. Statistics show cancer deaths in

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Missouri as follows: 1921, 2,900; 1922, 2,947; 1923, 3,176; 1924, 3,300, or fourth place; 1925, 3,388; 1926, 3,532; 1927, 3,709; 1928, 3,865; 1929, 3,926; 1930, 3,940; 1931, 4,028; 1932, 4,195, second place, position which it now holds; 1933, 4,161; 1934, 4,589; 1935, 4,597; 1936, 4,672; 1937, 4,761; 1938, 4,963.

In 1936 there were 118 deaths from cancer per 100,000 population in this state. This is comparable to practically all other sections of the United States.

But, from the standpoint of the medical practitioner and the public health doctor, the increase in numbers of deaths from cancer is highly significant. Whether the increase in deaths from cancer is real as some authorities claim, or is only apparent as others of equal authority insist, is an unanswerable question in the present state of cancer statistics.

It is generally agreed that increases in population mean increases in number of deaths, and just as likely there will be increases in mortality from cancer. The population of Missouri has been increasing about 6.6 per cent between the census counts of 1920 and 1930. However, the increase in cancer deaths from 1921 to 1930 was 36 per cent, almost six times as great as the increase in general population.

Actually, a great proportion of the increase is due to an increasing percentage of people in the older age groups, the cancer age groups, in our present population, and a decreasing proportion of people in the younger age groups, the relatively cancer-free ages. Our population is growing older. It suggests itself that we standardize our figures, that is, make our rates for each year comparable so that the slow unbalancing of the population scale toward the older age groups is no longer a reason for any increases in figures; but if we do standardize our figures over a period of twenty-five years, we have a 64 per cent increase as shown by the survey. Perhaps most, if not all, of this increase can be explained on the grounds of advances in diagnostic technic and better reporting of cancer deaths.

Closely associated with diagnostic services and reporting cancer deaths is the distribution of the physical facilities in the state for the diagnosis and

the treatment of the disease. There are approximately 110 hospitals in Missouri. Twenty-four of these are in St. Louis, eleven are in Kansas City and seventy-five are out-state. These include only general, surgical and cancer hospitals, and exclude seven hospitals operated by railroads, the Army, prisons and the Veteran's Administration.

There are five sections of the state in which most of the hospitals are grouped, northeast, central Missouri Valley, east central, Kansas City northwest and southwest. This distribution is important in the light of what I have just said about better diagnosis being responsible in part for the increase in reported cancer deaths, and is graphically shown in the survey.

Three hospitals in the state are exclusively for the treatment of cancer and allied disease. These are the Barnard Free Skin and Cancer Hospital and the two hospital divisions of the State Cancer Commission at Fulton and St. Joseph.

About one half of the hospitals in the state have laboratory facilities for the examination of tissues. Most of these are equipped for both paraffin and frozen tissue sections. More than half the hospitals in Missouri routinely send to outside private laboratories for tissue examination. Little work goes outside of the state.

There are twenty-three hospitals in Missouri having 200 K.V. or over roentgen ray machines. These are operated at various milliamperages making it impossible to arrive at an estimate of the total patient capacity of the machines. Nine of these are in St. Louis hospitals, four are in Kansas City hospitals and ten are in hospitals in Columbia, St. Joseph, Boonville, Jefferson City, Springfield and Joplin. There are fifteen other deep therapy machines in the offices of private physicians in Missouri. Five of these are in St. Louis, five in Kansas City, two in Jefferson City and one each in St. Joseph, Boonville and Springfield.

The utilization of privately owned equipment is limited. Even with the best of intentions physicians will be able to treat only a small percentage of patients who are unable to afford the minimum fees required by the large investment.

A number of roentgen ray machines of less than

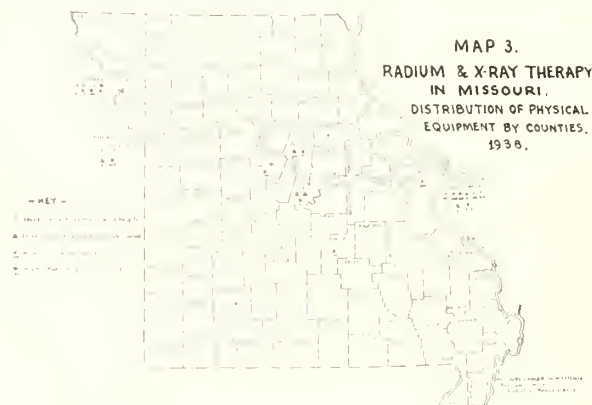


Fig. 1.

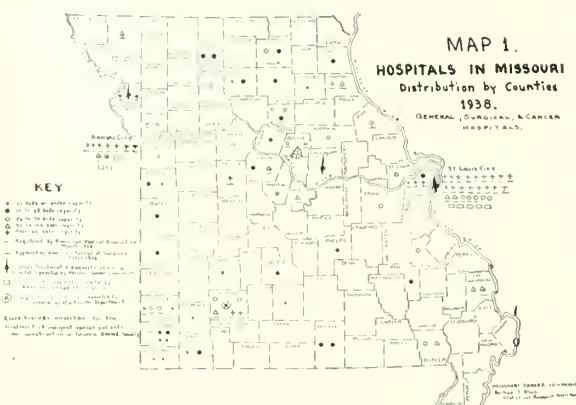


Fig. 2.

200 K.V. are in use in Missouri for cancer treatment. One can hardly expect that more than superficial treatment or treatment of skin cancers can be accomplished with these machines; however, in one or two isolated instances machines of 135 or 140 K.V. are being used in attempted deep therapy.

Hospitals in Missouri own 2,167 milligrams of radium; private physicians own almost 2 grams. Additional radium is obtained by rental from Quincy, St. Louis, Chicago and other large centers. A number of physicians and surgeons throughout Missouri rent radium for cancer treatment. This practice, which is frowned upon by the American Medical Association, is evidently more widespread than one would think.

One necessary facility in any adequate program of cancer treatment and control is medical social service and follow-up. The follow-up maintains the needed relationship between physician and patient in cancer treatment constant over as long a period of time as the physician recognizes as necessary to insure best treatment.

In St. Louis, ten hospitals have medical social work departments; in Kansas City, three hospitals have such facilities. Outside of these two centers there is nothing in Missouri in the way of organized medical social service.

We can quickly sum up the formal organized cancer services offered in this state by listing the cancer clinics approved by the American College of Surgeons and adding the Cancer Commission Hospital divisions at St. Joseph and Fulton, the New Ellis Fischel Hospital now under construction at Columbia, and a diagnostic clinic operated by the Greene County Medical Society. Recently such a clinic has been organized in the Kansas City General Hospital.

There are still a number of physicians and surgeons, particularly in the more rural sections of Missouri but also some in the larger cities, who believe firmly in the time honored dictum that cancer is incurable, that "with cancer there is no hope." There is also a tendency among a number of sur-

geons, both in urban and rural areas, to discount the possibilities of radium and roentgen ray therapy, considering such treatment to be of value only postoperatively or only as a palliative measure.

"It would be but an incomplete picture of cancer treatment and diagnosis in the state to leave out of consideration the work being done by healing systems and cults not associated with recognized medical practice."

There are some thirteen osteopathic hospitals in Missouri. The osteopathic center, Kirksville, has two hospitals which are utilized for teaching purposes by the Kirksville College of Osteopathy and Surgery. Osteopathic specialists make fluoroscopic diagnoses and read roentgenograms. It is reported that some osteopathic hospitals use roentgen ray of 88 K.V. for therapy. We have no record of any higher voltage being used in these institutions.

Two of the county hospitals in the state have osteopath members on their staffs, or admit osteopaths to practice in the hospital. This is done by the hospitals evidently in conformance with a statute which reads in part "In the management of such public hospital no discrimination shall be made against practitioners of any school of medicine recognized by the laws of Missouri," and evidently without regard to the statute which says specifically that osteopathy "Is hereby declared not to be the practice of medicine and surgery."

Far more serious than any lack of adequate service that the osteopath might have to offer to the cancer sufferer is the harm practiced by another institution within the state and an institution out-state by their advertising and radio broadcasting. Both institutions have long been condemned by the American Medical Association.

Of course, the Ozark region has its share of local cancer "quacks," who under the guise of doctors, pharmacists, townspeople and farmers, formulate and dispense various "cancer cures." Pharmacists in various parts of the state have on file "The Can-

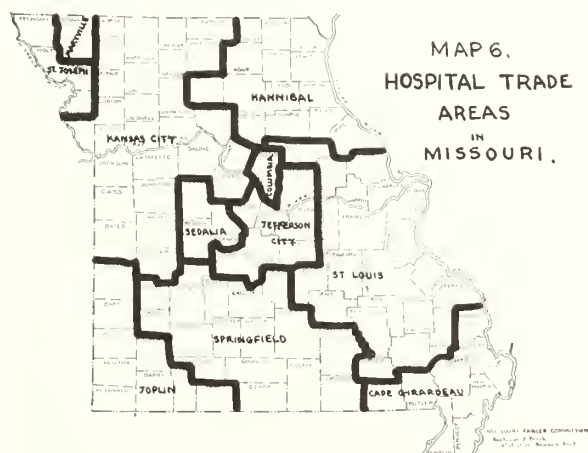


Fig. 3.

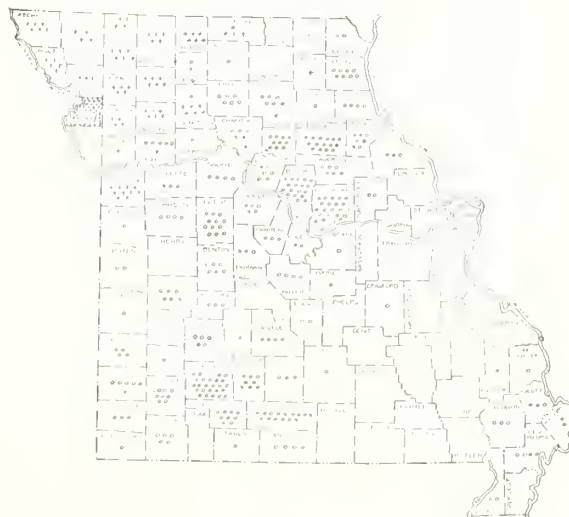


Fig. 4. Counties and number of patients referred to the State Cancer Hospital in 1938.

cer Cure" for dispensation to townsman or farmer who comes asking for it by name. The effect of all fake healers in the treatment of cancer is to make more difficult the spread of necessary education among the gullible people in the areas in which they operate. But, during the last decade the educational activities of the American Society for the Control of Cancer, the Missouri State Medical Association and such lay groups as the Women's Field Army have aroused interest in cancer among physicians throughout Missouri.

One of the most interesting questions considered in this survey is the relationship between the distribution of cancer and the facilities for its treatment. I stated previously that the physical facilities for the treatment of cancer, i. e., hospitals, roentgen ray machines and radium, are found in those regions of the state which have the greatest general incidence of cancer. The greater proportion of cancer deaths appears to occur in the better farming areas of the state and in the regions of better economic status of the people.

There is also another way of dividing the state for the purpose of studying distribution of cancer, facilities for treatment and the economic status of the people, and this is by hospital trade areas. These areas are based on the proposition that the center to which people go for the more important medical treatments corresponds to the centers to which they go for retail trade, with slight variations for ease of transportation and presence of facilities. Close examination of the indices of economic status, cancer incidence and facilities for cancer treatment in these hospital trade areas yields interesting results. Such study shows again that the greater cancer incidence is found in the better economic areas. If, however, one thinks of the urban centers of Missouri as serving defined sections of the state, one can compare the ranking of cancer treatment facilities by such areas with the cancer mortality.

But the possibility that there may be a causal relationship between facilities for diagnosis and treatment and the figures of cancer incidence must not be forgotten. Where better diagnostic facilities exist there are likely to be more deaths from cancer.

A great many questions of interest to the medical profession and of specific value to the state agency of cancer control have not been touched upon by the survey. Such things as measures of cancer morbidity in Missouri, distribution of tissue sections examined, volume of cancer patients passing through hospitals and other information needed to give an entirely complete picture of the cancer problem in a state or region were not considered or were touched on but lightly in the present survey. There are two important reasons for this: (1) The limitations of time and money decided in part what might be accomplished. (2) By far the most important reason, the status of medical, health and social statistics for Missouri is such that many of

these questions just cannot be answered from the available information.

The 1940 Census will enable us to add a great deal to the material needed for making our indices more exact and reliable. The work of such research bodies as the State Department of Vital Statistics, the Statistics Division of the State Social Security Commission, the studies of the American Medical Association, and the keeping of an adequate body of records at the Ellis Fischel State Cancer Hospital and the clinics will gradually enable us to answer many of the questions that have come to your mind in the course of this talk.

SUMMARY

The apparent or true increase of cancer is, I believe, due to the increased number of people in the cancer age group and to the better facilities of diagnosis and treatment.

The morbidity of cancer, while not known for the State of Missouri, may be estimated as follows: The morbidity-mortality ratio in use by the Massachusetts Department of Health and the southern field representative of the American Society for the Control of Cancer is a ratio of two to one, while the northern representative of this Society uses the ratio of three to one. A fair estimate for Missouri may be considered about two and one half to one. In 1936 there were registered in Missouri 4,672 deaths from cancer with a ratio of 2.5. We now have a morbidity list of 11,676. The death rate from cancer in Missouri can be greatly reduced during the next few years by a well organized educational campaign, not only for the laity but for our profession as well.

The Ellis Fischel Cancer Hospital will, I believe, be a beacon light perpetuating such a campaign. The medical profession should not lose sight of the fact that the case records and statistical information gathered by the Ellis Fischel Hospital and the Fulton and St. Joseph clinics will be invaluable for statistical and biometrical studies of cancer preventions, causes, treatment and care. This campaign, to be successful, should have for its foundation efficient social service work. The Cancer Committee of our State Medical Association cooperating with the State Cancer Commission should conduct and supervise this work carefully.

Medical Arts Building.

ANNUAL CONFERENCE OF SECRETARIES

The Annual Conference of Secretaries of Constituent State Medical Associations and Editors of State Medical Journals will be held in Chicago November 17 and 18. *The Journal of the American Medical Association* for October 7 announces. The first session will be convened at 10 a. m. Friday, November 17. All meetings will be held in the Assembly Room of the American Medical Association Building, 535 North Dearborn Street, Chicago.

Officers of state medical associations and county medical societies, and individual members of the Association who may desire to be present, are invited.

REMOVAL OF PORTION OF STOMACH TUBE FROM THE STOMACH THROUGH THE ESOPHAGOSCOPE

REPORT OF CASE

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AND

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ST. LOUIS

G. W., white male, aged 50 years, was seen at Barnes Hospital on January 26, 1939. On January 22 the patient had become intoxicated and was treated by gastric lavage through a stomach tube. A mouth gag was used. During this procedure the patient bit the tube in half, swallowing the portion in his esophagus. The tube had remained in his stomach for four days. After proper roentgen ray study the tube was removed by esophagoscopy. The patient's postoperative course was uneventful.

This case demonstrates several important points for consideration when dealing with such accidents. First, whenever a stomach tube is inserted without the patient's cooperation, and especially in the case of a drunken individual or the insane, a bite block or gag should be continuously held in the mouth while the tube is in position. Second, if the tube is swallowed into the stomach there is no need for a laparotomy for its removal. Roentgen ray films will demonstrate its presence and position and if properly done there should be no danger whatever in removing such a foreign body from the stomach through the esophagoscope. This point is emphasized because it is not unusual for the abdomen and the stomach of such a patient to be opened for the removal of the foreign body.

Such foreign bodies as that in this case should be removed promptly because of the danger of injury to the intestinal wall if allowed to pass from the stomach into the small intestine.

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ECTOPIC DECIDUAL CELLS

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In laparotomies or autopsies on pregnant women there will be found in a small percentage of cases nodules or islands of apparently neoplastic tissue on the surface of the pelvic and peritoneal organs. These are islands of ectopic decidual cells. They are not rare. Every surgeon or pathologist of average experience has had opportunities to observe them. Weller¹ says that "in an active diagnostic service several examples may be seen in a single year." They have been mistaken for tuberculosis or neoplasms. They may be confusing if the doctor does not know about ectopic decidual cells.

These islands of ectopic decidual tissue are usually circular but have been found in streaks about the appendix. They are paler than the surrounding tissue, the surface is convex, never umbilicated, they are smooth and are subperitoneal. They occur on the surface of the ovaries, fallopian tubes, posterior wall of the uterus, lower intestines and appendix and less frequently in the pelvic and retroperitoneal lymphatic glands. They have been found on the spleen and the lower surface of the diaphragm. They have been produced experimentally in pregnant guinea pigs. They are not known to produce symptoms and disappear rapidly when the pregnancy is terminated.

The microscopic appearance is characteristic. Directly beneath an intact mesothelium there are nests of large cells with slightly basophilic cytoplasm with spherical, usually eccentric, nuclei. Cells 30 microns in diameter are not unusual. These cells apparently develop from the stroma cells of the subserosa and are identical morphologically with intra-uterine decidual cells. The ectopic, like the intra-uterine decidual cells, are often richly supplied with glycogen (Giepel).²

In 1887 Walker³ described ectopic decidual cells found on the pelvic peritoneum in a case of extra-uterine pregnancy. This observation was confirmed and other cases of ectopic decidual cells in intra-uterine pregnancy were reported. In 1905 Hirschberg⁴ described the decidual reaction on the appendix in intra-uterine pregnancy. In 1916 Giepel⁵ observed decidual cells in the lymph glands. Later he reported decidual cells on the spleen and diaphragm.

For many years it was accepted generally that under the influence of pregnancy the stroma cells of the uterine mucosa became decidual cells and that the presence of decidual cells always assured the diagnosis of pregnancy.

The occurrence of ectopic decidual cells is generally admitted. However, Winter and Ruge⁶ object to the term "ectopic decidual cells." Their argument is: "The decidual cells represent the stroma cells of the uterine mucous membrane transformed by pregnancy. Hence it is incorrect to speak of



Fig. 1. The stomach tube when removed contained the knot as shown.

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decidual cells in any other situation than the uterine mucosa." In 1938 H. Willer⁷ stated that ectopic decidual cells are identical with the intra-uterine decidual cells and that they are properly designated "ectopic" if they occur in any location except the uterine mucosa and the upper one third of the cervical canal.

The conclusion defended by Ulesco Strongabnowa⁸ that decidual cells occur only in pregnancy was practically disproved by Schiller⁹ in 1924. A sufficient number of observations have been made to justify the conclusion that the decidual reaction or the formation of decidual cells does occur independently of pregnancy. Decidual cells are formed under the influence of long continued irritation. Pregnancy is the most common cause of irritation but chronic gonorrhea, tuberculosis or trauma without pregnancy can induce the formation of decidual cells. But there must be a normal functioning corpus luteum (Loeb).¹⁰

The part played by mechanical trauma in producing decidual cells in women has, so far as I know, not been given serious consideration. In pregnant guinea pigs Loeb was able to produce deciduoma on the uterine serosa by making small incisions.

The ectopic decidual cells are formed from the preexisting stroma and fixed tissue and epithelioid cells. They are not migratory. They have nothing to do with the reticulo-endothelial system. (Goldman, Essinger, Aschoff and Jaffee).¹¹

That a positive diagnosis of pregnancy can be made on the presence of uterine or ectopic decidual cells seems untenable. However, as late as 1936 Taussig¹² states, "The positive diagnosis of an abortion can be made when large islands of typical decidual cells are found in the curetted particles," admitting that the examiner must be expert in this type of differentiation. He does not discuss ectopic decidual tissue.

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INFANT FEEDING

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The science of nutrition, and along with it the nutrition of infants, has become one of the outstanding fields of research in medicine. It may be doubted that any researches have achieved more glorious results in recent years than those in the field of dietetics. It, therefore, may be somewhat startling to say that infant feeding as a science, in so far as the use of milk is concerned, has been slowing down during these years and has deteriorated in direct proportion to the ease with which babies can be fed commonplace milk products. These short-cut routes to successful infant feeding were first approved by the pediatrician, they were then passed on to the general practitioner and have now been accepted by the laity to the exclusion, in a measure, of both the pediatrician and the family physician.

The explanation of this strange state of affairs lies in the knowledge that milk, long heated and evaporated to a powder or a syrup of half its original volume, as now more currently used, becomes by this procedure infinitely more digestible than whole milk or any known modification of it.

Mixtures of these evaporated milk products are easily made and are safe enough to allow considerable margin beyond the requirements of exact feeding. In their use a simple rule is to order an ounce of evaporated milk for each pound of the baby's weight, add enough water to make up the desired five or six feedings and carbohydrate to bring the energy quotient somewhere in line with that of breast milk.

In a large majority of cases these mixtures are well retained, do not cause colic and produce good stools. Above all, despite their horrible flavor, the babies like these mixtures and get fat on them. It is the exceptional case that does not respond, and so general has become the acceptance of this simple plan that pediatricians quite as well as those engaged in general practice have fallen into the habit of using them and have come to pay less and less attention to the fundamental requirements or standards of what we formerly called scientific feeding.

In the days before our feeding problems were solved for us by canned milk we were conversant not only with the percentages of the ingredients of our foods but made use of them routinely and thought of our formulas in caloric values based upon the surface area of the body. We based our plans upon grams of protein per kilo of body weight per day and struggled with whole milk, skimmed milk and top milk modifications, with split protein mixtures, discarding casein in favor of lactalbumin, with cereal decoctions and with citrate of soda to make our formulas stay down. In a word we were having a great deal more trouble than we are hav-

Read by invitation at a meeting of the staff of the Christian Hospital, March 27, 1939.

ing today but I believe we may have kept in better touch with nutritive requirements then than we often do today.

Thirty years ago we held up our hands in horror at mothers who fed their babies Eagle brand condensed milk, and have been floundering in the mire of despair ever since trying to find something that would agree quite as well with the child. Now we are getting back on the condensed milk wagon and everybody is happy. In all the experiments of the past, with one outstanding exception, nothing was found that worked so well. This exception is Bulgarian whole lactic milk of which a word will be said later on.

In the old days everyone knew that Eagle brand babies were fat and seldom had indigestion; but we also were aware that they were often pale and flabby, had low resistance to disease and commonly had rickets. Soon we learned that the fat and protein content of these mixtures and also the minerals were too low and we now know that those babies were not getting the benefit of various health promoting vitamins. We supply these things now. We remove needless clothing, keep our babies cool and give them sunshine and succeed well with condensed or evaporated milks; so well in fact that often we have let the standards of scientific feeding fall by the wayside. Whether this plan will continue only the future can tell. Personally I do not like it and give preference wherever I can to whole milk mixtures, using certified milk when possible and Bulgarian lactic milk to very young infants.

During the World War the late lamented William McKim Marriott worked out at his desk what has always seemed to me the most important single contribution to the science of feeding babies and for which, together with his work on insulin in athrepsia, he received an Award of Merit from the American Medical Association.

After the war the staff at the Children's Hospital learned what he had done. My recollection is vivid of the occasion when we heard him tell us that whole lactic milk could be given to babies undiluted at the beginning of their lives and even to premature babies weighing less than 4 pounds, and that 96 per cent of the latter survived instead of 96 per cent of them dying. The occasion, as I say, was vivid because my conclusion was that the man had lost his mind.

Dr. Marriott went further; he added Karo syrup to the lactic milk and raised its food value from 20 to 30 calories per ounce. We soon learned that this high calorie food, 50 per cent stronger than whole milk, was actually more digestible than breast milk. We do not say better than breast milk but we do say more digestible.

Everything went fine; our premature and marantic babies were snatched from the jaws of death and the normal ones grew apace. Then something happened! Dr. Marriott began making his lactic mixtures with evaporated milk and lactic acid and, although a nasty, thin, ill smelling mixture com-

pared to Bulgarian, the babies took it and thrived on it. Then we left lactic acid out and that is where we are today.

How much Dr. Marriott's example was responsible for the use of evaporated milk throughout the country it would be difficult even to surmise but, as the most faithfully followed leader in infant feeding of his time, one may suspect that it may have been considerable.

Evaporated milks have, I believe, come to stay. Add lactic acid to them if you like. But if you want to earn the lasting gratitude of your mothers and make the finest babies in the land and cannot get breast milk do not overlook Bulgarian whole lactic milk not taken out of a can.

What proportion of these canned milks in this area are being brought in from the Kansas dust bowl where calves have been going blind and dying young because their mothers were subsisting on timothy hay and white corn is a question. We have no control of course of the feeding of cows from which these milks are obtained.

I add just a word about the auxiliary or accessory foods needed in the first year or so of life. Thirty years ago cereals were begun late because we were taught that they could not be digested until after the teeth were in. We now give them any time we like and find them digested perfectly from birth on, the iodine test of the stools showing that the starch has been converted even in the early weeks of life.

Twenty-five or thirty years ago the Boston school under John Lovett Morse withheld vegetables from babies until they were 18 months old and some will recall that it was customary to give the bottle every two or two and a half hours with eight, nine or ten bottles per day; and Holt asked in his little book for mothers, "Why is it not necessary to give a bottle more often than every two and a half hours?"

Current practice calls for two feedings of a cereal with high vitamin B content daily from 5 months on, and some of us like to give vitamin B in some form before cereal is started. Vegetables, preferably two kinds, cooked for forty-five minutes in slightly salted water and served together in the water in which they are cooked, can be given from 6 months on. Concerning canned vegetables, evidence has recently shown that, although preserved during the canning process, the contained vitamins of vegetables may disintegrate and disappear after being sealed for long periods of time; and who knows how old the can is when the baby gets it. My order is that home cooked, fresh vegetables be given preference at least half the time.

Fruit juice must be started early. A tablespoonful or two of orange, pineapple or tomato juice meets the requirements for vitamin C. I recently handled a case of scurvy in a child brought in on a pillow from Salem, Illinois, whose orange juice had been bought in a can.

As to growth promoting, anti-infective vitamin A and antirachitic D, it has been my observation that physicians often make the mistake of giving too

much of either or both of these vitamins. Although not harmful, this may place a needless strain upon the family budget as well as the baby's digestion. Many concentrates are now available in which the required 3000 units of A and 400 of D per day are provided in three drops. This, Dr. P. C. Jeans has shown, is the full dose until 11 years of age. It should not be stopped in summer but given daily throughout the year.

University Club Building.

COMMON SENSE IN PEDIATRIC PRACTICE

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This is an age of new, modern methods of diagnosis and therapy; good in a way but detrimental for physicians starting in practice because too many continually think of the rare and spectacular diseases and only the new methods of therapy to use with the every day case. It is my purpose to try and give some practical ideas on common sense therapy.

When a child is seen at the beginning of any illness he appears desperately sick. The young doctor too often thinks of something to do that is spectacular. In his youthful enthusiasm he wishes to do something hurriedly such as a blood transfusion, some prontosil or innumerable blood tests, all of which may be essential but all too often are done to the detriment of the patient.

It is true that heroic and spectacular therapy is impressive in a way, especially to the lay public, and occasionally does good, but often it is not indicated. If we could only use the old panacea of the family doctor; sugar pills and meditation, how much better it sometimes would be for both the doctor and the patient. Frequently I have seen credit given some form of therapy when, by watchful waiting, the child would have improved anyway. The therapy used gets the credit.

True, we have specifics, but in the majority of diseases they are few. When a child has diphtheria, severe scarlet fever or meningitis, the specific therapy is indicated and never used too soon. But these cases are the 1 per cent. The 99 per cent are cases that need good horse sense in outlining treatment. The unfortunate thing about specialization is that the specialist is looking at only one side of the picture. The fortunate thing in child specialty is that we are really general practitioners for children and consequently see the entire picture. We understand the parents and the general condition (*in toto*) of the patient. We look at the picture from a broader angle.

Good judgment means the use of therapeutic measures which have proven of merit, both scientifically and empirically. When we understand pathology with respect to physiology and metabolism we can easily judge what are the proper measures to be carried out.

A child with a high fever needs first and foremost, water, or rather, liquids; if one type of fluid does not appeal, try another. Children will take many other liquids besides water; most any form is suitable. I have found sweetened tea or soda water desirable.

The next and most important thing is the question of fever. Do not forget that fever is nature's means of combating the infection. Do not reduce it too hurriedly and by all means do not use drastic medication, i. e., depressing antipyretics. Hydrotherapy with perhaps some mild sedative to produce rest is usually all that is needed. In former years ice or cold sponge baths were used but the use of hot tub baths and warm sponges is all that is necessary. I continue to use aspirin and phenacetin, but these can be used harmfully to combat a fever.

Next in order of treatment is the diet. We should feed the child if he desires food. Many a child will eat and wish to eat even though he has a high fever. Nature is a good doctor. The old idea that milk should not be used with fever has some basis. What the child actually wants is fluids and milk supplies the fluids, but it also overloads the digestive tract with heavy curds, raw milk being more difficult to digest than beefsteak. All milk given to a feverish child should be boiled and perhaps skimmed. Solid foods are needed if desired by the patient. We often have made the mistake of giving too much food in the form of soups and broths which have no caloric value. A sick child needs protein, and in abundance, if the digestive tract desires it.

Another fallacy is the idea that sick children should be purged daily. The practice originated from the idea that the toxins were eliminated through the intestines. When a child does not eat or exercise, naturally the bowels are sluggish and consequently there is not the daily evacuation. Citrus fruit juices are an aid to evacuation and also supply vitamin C which is essential to a sick infant.

The greatest mistake is to allow a sick child who is recuperating but still has fever to get out of bed too soon. Much damage is done in allowing the child to suddenly return to his daily routine. There are two important burdens placed upon the heart: first and foremost, the bacterial and toxic effect present with any acute infection, and second, the too sudden strain demanded of the heart after illness by permitting resumption of former activities. The heart, after a severe illness, needs a period of rest commensurate with the length of illness and the type of infection and status of the child. Many times I have seen an overtaxed heart which was due to no other reason than allowing the child to be too active too soon.

The whole problem of caring for a sick child is first to understand the child, second, the disease condition present, and third, use the best method possible to aid nature in correcting or overcoming the disease. Should a boil be incised the first or second day of its appearance? No, nor should a

child with a tonsilar abscess have the abscess lanced hurriedly. Let nature first do her work with some assistance, and, after nature has done all she can, then go to her aid.

I feel that too many fingers, arms and legs have been unnecessarily amputated. As I have often said, nature is a wonderful doctor with a little assistance or a guiding hand. Typhoid does not get well in a day, neither does pneumonia, scarlet fever or tonsillitis. Aid nature and be patient and be mindful of the old saying, "Fools rush in where angels fear to tread."

Successful therapy in pediatrics demands good nursing care and no one is more interested in the sick child than is the mother. If she is intelligent she will cooperate in carrying out the orders given.

May I say one word about cleanliness in treating skin infections, abscessed ears, purulent noses, foul mouths and a thousand other purulent conditions? In my private practice I have had only three cases of empyema, which I cared for myself, all of which recovered rapidly by drainage and frequent copious irrigations with warm normal saline solution. We expect too much of antiseptics whereas the main healing factor is cleanliness. The mucopus must be removed before the antiseptic can be of benefit.

All too often we see the patient treated energetically with heart stimulants and tonics and so-called specifics and the main cause of the trouble neglected. If a patient has rheumatism shall we give salicylates, or shall we endeavor to find what is causing the trouble such as an improper diet (lack of vitamins), an unhealthful home environment or, perchance, infected teeth or tonsils? Too many teeth and tonsils are removed that have no direct bearing on the condition present.

One idea to which I still adhere is that it is better for the tonsils to be out, with some rare exceptions. They are a potential danger and cause more trouble than any organ in the child's body. A child whose tonsils have been removed has a less stormy course with all types of infection of the throat or the exanthemas which begin in the throat. It is well known that children whose tonsils have been removed rarely have diphtheria and scarlet fever is milder which is true of many other infections. One must use reasonable judgment as to the condition of the patient at the time of operation and also as to the season of the year. Tonsils should never be removed during an epidemic. A tonsillectomy is never an emergency operation as is appendicitis and consequently there is no need for haste. All too often we treat some condition hurriedly and regret afterwards that our results were not good.

In conclusion, may I emphasize the importance of good sound judgment and careful analysis of our medical and surgical cases? Do not jump in hurriedly and do something which will cause regret later. Use the simple remedies which are indicated, i. e., good symptomatic therapy, specifics if we have them.

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SULFANILAMIDE AND COMPLICATIONS OF SCARLET FEVER

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AND

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During the last two years numerous reports have appeared in the literature, both in this country and abroad, on the use of sulfanilamide in the treatment of infections caused by the beta hemolytic streptococci. The results have been more or less striking. Since Long and Bliss¹ made their first report of its use on controlled experimental and clinical cases, sulfanilamide has been used in the treatment of gonorrhea, meningococcic meningitis, streptococcic meningitis, erysipelas, gas gangrene and in beta hemolytic streptococcic infections of the middle ear and mastoid as well as in typhoid fever. It has been used also in the treatment of pneumococcic meningitis and in scarlet fever.

In view of the favorable results obtained in these diseases it was thought advisable to try sulfanilamide in the treatment of scarlet fever to determine its effect upon the course of the disease and possible influence upon the incidence of complications for it has been observed that although scarlet fever antitoxin will, in most cases, cause a prompt abatement of the toxic symptoms when given early, it does not in a large number of cases prevent complications.

During the fall and winter of 1937 and 1938, there was a mild epidemic of scarlet fever in St. Louis and much clinical material was available for the study of the effect of sulfanilamide on the course and complications of this disease.

As the patients were admitted to Isolation Hospital they were placed alternately upon sulfanilamide and symptomatic treatment and only a few (thirty) of the total cases studied had toxic symptoms severe enough on admission to make it seem advisable to give a therapeutic dose of antitoxin. Of this number fourteen were in the control group and sixteen in the group receiving sulfanilamide.

The cases in this series were given, as nearly as possible, sulfanilamide in the dosage of 15 grains (1 gram) to 20 pounds of body weight per twenty-four hours for the first day of hospitalization with maximum dose of 6 grams; on the second and third days they were given 10 grains (0.66 gms.) to 20 pounds per twenty-four hours and after the third day were given 5 grains (0.3 gms.) every four hours and kept on this dosage until the temperature returned to normal or fell below 100 F. (most temperatures were rectal), although in a few cases the dosage had to be reduced or stopped entirely due to the development of toxic symptoms.

The complications that occurred most frequently during the last year at Isolation Hospital were cervical adenitis (considered as a complication only if it kept the patient in the hospital over quarantine

period of twenty-eight days), otitis media, rhinitis, mastoiditis, arthritis and nephritis, with their frequency about in the order listed.

In all there were 107 cases treated with sulfanilamide (table 1) and 96 cases in the control group who received no sulfanilamide (table 2).

Table 1. Total Number Cases With Sulfanilamide

Ages	0-5	5-10	10-20	20-30	30-40	40 or over
Number of each	31	32	25	11	6	2
Female	11	15	14	4	3	1
Male	13	14	11	7	3	1
Negro	7	3	0	0	0	0

Table 2. Total Number of Cases Without Sulfanilamide

Ages	0-5	5-10	10-20	20-30	30-40	40 or over
Number	29	27	18	13	5	4
Female	11	14	9	7	3	0
Male	15	11	7	5	1	3
Negro	3	2	2	1	1	1

There was no selection of cases; the cases in both groups ranged in severity from moderate to severe illness. The ages ranged from 1 year to 60 years with 75 per cent of the cases under 20 years of age.

In the group of patients receiving sulfanilamide the temperature returned to normal in 6.2 days average. In the control group it did not reach normal until 6.5 days had passed. In some cases in both groups the temperature remained high for as long as twenty-one days and in others returned to normal within from twenty-four to thirty-six hours. Excluding these two extremes, it was found that in practically all cases the temperature was normal within from five to seven days or approximately the average as given.

Table 3. Total Cases Treated With Sulfanilamide

Ages	Number of Cases	Complications
0-5	31	24
5-10	32	13
10-20	25	0
20-30	11	0
30-40	6	0
40+	2	0

The cases studied included males and females, both white and Negro, with about an even distribution as to sex. There were ten Negroes in each group. From table 3 it will be seen that of the 107 cases treated with sulfanilamide there were thirty-seven with complications; the largest number (twenty-four) occurring in the age group between 1 and 5 years and the rest (thirteen) between the years of 5 and 10 with no complications occurring in patients over 10 years of age. This is apparently

Table 4. Total Cases Treated Without Sulfanilamide

Ages	Number of Cases	Complications
0-5	29	11
5-10	27	4
10-20	18	2
20-30	13	0
30-40	5	0
40+	4	1

explained by the fact that the children in this age group (1 to 10) as a whole are not as resistant to infections as are those in the older age group.

In the control series of ninety-six cases, with the age range approximately the same as in the treated group, it is seen from table 4 that there were only eighteen cases in which complications occurred and in this group as in the former the largest number of complications occurred in patients between the ages of 1 and 10 years. However in this group there were two cases in the 10 to 20 years of age group and one in the group over 40 years of age in which complications occurred. Also there were two cases of nephritis, which fortunately cleared up rapidly, whereas no cases of nephritis occurred in the group receiving sulfanilamide.

Although in the first group there were thirty-seven patients who developed complications, there were several who had more than one complication a large number having otitis media and adenitis or otitis and rhinitis, and in three the otitis eventually gave rise to mastoiditis. In the control group similar complications occurred; however, there were no cases that developed mastoiditis.

One of the incidental observations made during the study was that the patients appeared to develop a resistance to the drug. Previous to and during this series it had been our policy to give sulfanilamide to patients with scarlet fever only after the development of cervical adenitis and other complications and in most of these the drug caused a prompt regression of the glands and infections. The patients in this series who were put on sulfanilamide and then taken off when the temperature dropped to normal, obtained no effect whatsoever to the adenitis or other complication when the drug was again resumed.

Although more complications occurred in the group of patients receiving sulfanilamide we do not feel that the drug caused the greater number of complications but that it was only a coincidence and had the cases been reversed it would have appeared that sulfanilamide had caused a decrease in the complications.

The occurrence of transient methemoglobinemia, acidosis, morbilliform rash and marked cyanosis have been reported following the use of sulfanilamide; the only toxic symptoms observed in this series were a mild cyanosis and a tendency to persistence of a low grade temperature both of which cleared readily upon reducing the dosage or stopping the drug entirely.

If material is again available it would be interesting to try giving sulfanilamide in larger doses over a longer period of time and also giving a maintenance dose of the drug after building up the concentration in the blood during the entire period of isolation and observe the effects of these procedures upon the course and incidence of complications. Some men at present are giving from two to three times the dosage used in this study;

however they do have a larger number of toxic reactions.

CONCLUSIONS

1. Sulfanilamide, in our experience, causes no decrease in the number of complications following scarlet fever.

2. It appears that sulfanilamide is of more benefit when it is given after the development of complications.

3. The dosage given caused no toxic symptoms other than cyanosis and low grade temperature.

4. Further study of this problem is indicated.

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SYMPOSIUM ON PULMONARY TUBERCULOSIS

THE PREVENTION OF PULMONARY TUBERCULOSIS

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There is no known specific treatment for pulmonary tuberculosis. During the last few years collapse therapy has given a more specific means of insuring rest but the old established principles of rest and good nursing care have always been and are now the main methods to secure arrest of this disease. Statisticians¹ can show that newer methods of treatment have made little difference in mortality rates because relatively small numbers of patients receive such treatment. They argue that the only reason there are fewer deaths now is because there are much fewer cases and show that if we consider percentages, mortality rates are the same. For example, in New York State outside of New York City in 1915, there were 9,950 cases of tuberculosis with 5,404 deaths and in 1935 there were 5,765 cases with 2,839 deaths. The decrease in deaths is due to a decrease in number of cases of the disease. If we are to further decrease deaths we must prevent development of the disease.

The decrease in the number of cases and of deaths during the last twenty years in spite of the lack of specific treatment is remarkable. There is a specific treatment for syphilis but nowhere near the same success has been attained in the fight against that disease. The Metropolitan Life Insurance Company² in a recent bulletin shows the savings in lives is in another way. In 1920, sixty-five out of every 1,000 newly born white males and fifty-eight out of every 1,000 newly born white females were destined to die from tuberculosis. On the basis of present mortality conditions these figures have been changed to thirty-five and twenty-five. In Negroes the story is not so good. At the present time eighty-one males out of each 1,000 newly born male babies may expect to lose their lives from tuberculosis and from a similar number of newly born Negro females seventy may expect

to die. These figures show us that there is still much work to be done. The results of the past have been good but the job is far from finished. The program of prevention is working. The way to decrease the tuberculosis death rate is to lessen the number of people who contract the disease.

The decrease in deaths has not been uniform for all age groups. There has been a decrease at all ages but the greatest reduction has occurred in the lower age levels.

Table 1. Deaths Per Age Groups in New York City

Age	1914		1934	
	Deaths	Per Cent	Per Cent	Deaths
0 5	756	7.3	3.6	159
5 9	239	2.3	.8	34
10 19	770	7.5	5.4	243
20 29	2113	20.5	22.2	980
30 39	2536	24.7	20.9	925
40 49	2140	20.8	20.0	882
50 59	1148	11.2	15.6	689
60 69	465	4.5	8.4	370
70	123	1.2	3.1	138

The percentage of deaths is about the same for the middle decades but because the actual number of deaths in groups aged more than 50 has not changed much this older class now furnishes one fourth of all the fatalities.

If we prevent deaths, we must prevent disease. If we prevent disease, we must prevent infection. All figures available seem to confirm this. The eradication of bovine tuberculosis is another example. In America tuberculous infection was taken to mean possible tuberculous disease and all infected animals were destroyed. In England animals were not destroyed until actual disease was diagnosed. Today, America is almost 100 per cent free from bovine tuberculosis. In England, there is little change from the time of the beginning of the campaign over twenty years ago.

We have had intensive educational campaigns for physicians and for laymen. One would think that every doctor and every layman would have a thorough understanding of the disease. The recent Gallup³ poll showed that only 18 per cent of laymen believe the disease is caused by a germ and that less than 50 per cent believe rest is essential for good treatment. There is, therefore, room for much more education among the lay groups.

There is no doubt but that much of the decrease in disease incidence has come from improvement in living conditions, better water and milk supplies, better transportation and housing. Improved public health in general has affected tuberculosis case rates. A part of this improvement which has been and still is aided by the various tuberculosis associations' programs has been the increase in the number of hospital beds available for tuberculosis. Statisticians who say that modern therapy has had little to do with decreased death rate acknowledge that much of the success of the prevention program has been due to the increase in the available beds. In New York State one in three patients can now be hospitalized whereas twenty years ago only one in twelve could be cared for. The isolation of these active cases prevents infection. Collapse therapy is relatively new but it is being extended so much that at the present time in the average sanatorium more than 50 per cent of the patients receive such treatment in one form or another. This hastens closure of cavities, lessens danger of infection, adds to the isolation program. Due to the decreased number of open carriers because of this hospitalization, isolation and treatment, children have less chances of being infected. Whereas thirty years ago, at age 20 there was almost 100 per cent infection, now there is less than 20 per cent in many localities and a material decrease in all. In Kansas City, even in the heavily infected Negro race, there is less than 50 per cent infection and infection of whites varies from 20 to 40 per cent. Now, if we consider the older groups we find that persons aged 50 and more grew up in a period in which there was still almost universal infection. The 50 year old groups of 1934 and 1914 are therefore about the same when percentage of early infection is concerned. W. Bruce Douglas¹ in the recent Detroit Survey shows that in the lower age groups there is little infection and that in older groups there is much infection. He also found that regardless of age, there were approximately twenty active cases per thousand positive tuberculin reactors. This shows that if we hope to eradicate the disease we must eliminate the initial infection. As each ten year group advances we will find a decrease in the number of deaths and as the number of cases decreases we will find the mortality rates lessening rapidly.

Inoculation with an attenuated strain of bacilli, B. C. G., was and still is proposed by some as a means to prevent tuberculosis. In this country, especially in the Middle West, the isolation preven-

tion program has succeeded far better than any of the most rabid B. C. G. advocates can claim for a similar population group. The prevention program is basically sound and it works. It has achieved great results with a medical profession not very tuberculosis minded and a public which needs a great deal more education. Mass surveys and mass studies are now becoming border line projects in this territory. In the future the work must be more intensive, more individual. Surveys will have to be made in selected groups. The private physician must be more and more on the alert to make a diagnosis in the early stages. To do this it is necessary to know something of the forms tuberculosis takes, how age groups differ and how the program will have to be altered from time to time.

The prevention of tuberculosis requires first, the diagnosis of active cases and successful treatment or isolation of the infectious ones. This calls for an adequate hospital program. This building program, however, calls for sanity as experience has shown that to build sufficient hospitals to care for all present cases will greatly overbuild for the future. The second requirement is adequate follow-up of infected and contact cases. In the program for elimination of bovine tuberculosis it was taken for granted that every infected animal was potentially tuberculous. Infected humans are also liable to develop actual disease but if they realize their danger may be able either to prevent such breakdown or if it occurs receive early treatment. Third, the discovery of new patients is necessary. In many cases (figures vary to over 50 per cent) no contacts can be found. Routine surveys in large adult groups of supposedly healthy people always reveal a few cases of active tuberculosis. These unsuspected cases develop into far advanced ones and scatter much infection before symptoms develop.

The family physician of today is able to do a great deal in the accomplishment of this program. The tools he requires are a careful history, clinical examination, tuberculin test, fluoroscopy and roentgenography. His patients form a group of all ages which will yield a higher per cent of active tuberculosis than a similar group of supposedly well people. Application of the tools varies according to age groups.

Pre-school Age. 0 to 5.—The clinically ill, the miliary types and the generalized infection meningeal forms are almost universally fatal. To prevent, adult contacts of children must be free of tuberculosis. It is tragic to find active disease in a parent after a child has died of meningitis. Every parent should have a careful chest examination including a roentgenogram. Routine films made in the first or second months of pregnancy would prevent many a later tragedy. Routine Wassermann tests are asked. Why not chest films? Domestic help, Negro maids especially, represent a real hazard. Every person coming into intimate contact with children should be free from tuberculosis. In as much as tuberculosis is masked and appears in

many different forms, any case of chronic pulmonary disease should be considered as tuberculosis until definitely proven otherwise.

Routine.—Children under 5 years should have a tuberculin test. If expense need not be considered, positive reactors should have roentgenograms. More important, all contact adult reactors should have roentgenograms.

Grade School Age. 5 to 12.—This is the most healthful age as far as actual disease is concerned. Infection is liable to occur if contacts are present and precaution about examining contacts should be continued.

Routine.—Give all 5 to 12 children a tuberculin test. Roentgenograms are not needed. Consider these children as potential cases but quite unlikely to develop active trouble. Joint and bone tuberculosis or other nonpulmonary forms may occur. Regulate health program of infected children. These children must not be given inferiority complexes. The normal health program now in use with rest stressed a bit more than exercise is apparently the best treatment. Sanatorium or preventorium care is not necessary. Further infection should be guarded against. The best school survey possible is to use tuberculin test in 5 and 6 year old groups and roentgen ray the adult contacts.

Teen Age. 12 to 18.—With development of adolescence, reinfection type or adult type of tuberculosis becomes more likely. Five per cent of all deaths are in this group. At this age the disease is insidious, often far advanced before symptoms develop. When diagnosed even in minimal forms it is likely to progress and so demands prompt treatment. It is many times more likely to develop among those who have been in contact with active cases. Do not neglect any active lesion no matter how small. This is a dangerous age.

Routine.—With a history of contact, do tuberculin test and make roentgen studies of positive reactors, especially those in contact. Examine adult contacts. Contacts of positive tuberculin reactors should have films repeated every year or two. It is best to continue the tuberculin testing program. It is not unusual to find persons infected for the first time at this age. The primary infection in such cases may pass right on into reinfection types of disease especially difficult to treat.

College Age. 20 to 30.—The home circle has been left behind. Careful history often will disclose former opportunities for childhood infection. Such persons need careful attention. Tuberculin tests are of value and all reactors should have at least one roentgenogram. Reexamination depends on history and findings. Fluoroscopy screening is valuable at this age if the operator is sufficiently skilled. If he has not had special training or experience it is dangerous. The same applies somewhat to roentgen ray. The roentgenogram film is probably the best single method of diagnosing early tuberculosis but the interpretation of shadows is not work for the novice and much harm

has been done by making chest diagnoses purely from a roentgen ray standpoint. It is well to remember that tuberculosis remains hidden and patients symptom free for some time and when most patients seek medical advice their disease is moderately or far advanced. To change this requires examinations of apparently well persons.

Group Aged 30 to 50.—The tuberculin test is of less value at this age. Better is a fluoroscope and film properly interpreted. The film as a screen tells you who to examine further. In other words, if abnormal shadows are seen on the film complete examination by all other diagnostic means is necessary to rule out or confirm tuberculosis. In years to come the tuberculin test will probably be of value in this group.

Group Aged 50 and Over.—At the present time this group presents great difficulties. About one fourth of deaths from tuberculosis occur in this group. Other chest disorders such as chronic bronchiectasis, emphysema, asthma, pneumoconiosis and pulmonary carcinoma may occur by themselves or in conjunction and mask a mild but infectious type of tuberculosis. Every case of chronic lung disease in a person over 50 should be regarded as tuberculosis, or potentially tuberculous, until definitely proven otherwise, especially in regard to infectivity. Be careful about allowing such persons to care for children. "Chronic bronchiectasis," and "chronic asthma" of the aged have been responsible for spread of much disease. The symptoms of tuberculosis in the aged are often mild, the signs may be few and masked by chest fixations and deformities. Sputum is often scanty. Bacilli occur in small quantities and may be hard to find. In short, the diagnosis and differential diagnosis of chest disease in the group over 50 is not easy but it is of tremendous importance because this is a group of moderately ill carriers who may spread disease far and wide. In addition to the difficulties of diagnosis, facilities for treatment for this group are inadequate. Many of these patients are chronic invalids and it is impossible ever to render them noninfectious. Hospital beds for such patients are too few as some of them require years of institutional care. There is no doubt but that some provision for such beds must be made. Institutions of the boarding house type will suffice and so relieve the more expensive modern sanatoria. Every person positively diagnosed as tuberculous should be taught to observe definite precautions to avoid transmitting this disease and should regard himself as a potential carrier for the rest of his life.

The decrease in the number of cases of tuberculosis makes large surveys of supposedly well persons expensive. Proposed governmental plans for such campaigns may have value some places but in the middle western states with white death rates almost universally below fifty, they seem extravagant. The individual physician in his office is now the best case finder for such areas and in the future,

as the older groups pass out of the picture and the younger ones become less and less infected, the physician will have to become more and more alert. The prevention of tuberculosis is primarily a matter of prevention of infection. Every case of tuberculosis came from another one. If every active case could be found quickly and adequately cared for, coming generations would quickly be freed from the disease. The greatest reservoir of infection in this community is in the Negro and Mexican groups.

This must be eradicated. "No home is safe from tuberculosis until every home is safe."

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SYMPTOMS, SIGNS AND DIAGNOSIS OF PULMONARY TUBERCULOSIS

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Every physician is aware of the cardinal symptoms and signs of advanced tuberculosis and is able to make the correct diagnosis with little history or examination when he sees a cachectic individual coughing violently, raising purulent sputum and complaining of pleurisy. Yet few physicians have gone through many years of practice without having treated a patient for influenza, anemia, pyelitis, indigestion, bronchitis, laryngitis, bleeding from a ruptured pharyngeal blood vessel, malaria or low blood pressure without later learning that some other physician had discovered the presence of pulmonary tuberculosis.

During the last few years medical learning has made rapid advances and laboratory and roentgen ray facilities are now available to almost everyone, yet the percentage of cases of pulmonary tuberculosis undiagnosed until far advanced remains practically the same as twenty years ago. While this is largely because many patients do not consult their physician until they are no longer able to carry on their daily work, it is certainly a challenge to every general practitioner, especially since with present day methods of treatment the early case of tuberculosis has a much more favorable prognosis than twenty years ago or even ten years ago.

Periodic health examinations are in many places helping to solve this problem as are the many public health agencies; but in most communities of this state the problem is entirely in the hands of the general practitioner. It is therefore imperative that he continue his efforts to make early diagnoses.

Case histories often are not scientific and are frequently inaccurate and misleading. However, reviewing large numbers of histories frequently gives interesting information. Examination of the histories of 500 consecutive admissions to the Missouri State Sanatorium reveals that there are several general modes of onset of tuberculosis.

1. In contradiction to most textbooks, the most frequent mode of onset is with an acute cold or influenza. Approximately 40 per cent or 192 admitted no symptoms prior to an acute cold or "flu."

Therefore, if cough or other symptoms continue for more than a few days or weeks after an acute cold, the physician should bear in mind the possibility of tuberculosis.

2. Approximately 36 per cent or 183 gave a history closely simulating histories in most textbooks. They usually had noticed malaise, easy fatigability, weakness, loss of weight, frequently accompanied by or soon followed by dyspnea. They frequently denied all cough or chest pain or said that they had no more cough than most people for weeks or even months. Many of them had been treated for anemia and low blood pressure for months.

3. Forty-five or 9 per cent stated that they had raised blood before any other symptoms appeared, the amount varying from less than a dram to profuse hemorrhages. Over 50 per cent of the 500 had raised blood before their admission to the institution. It is my contention that spitting of blood always should be considered serious until definitely proven otherwise and should call for a careful and complete examination including roentgenogram and blood studies even if it occurs in the total absence of other symptoms.

4. Forty or 8 per cent stated the onset of their condition was with an attack of pleurisy, many complicated by an effusion. Several cases were omitted from this group because the pleurisy occurred several years before other symptoms appeared. It is customary at this institution to consider a pleural effusion as tuberculous in origin even if organisms cannot be recovered if such conditions as cancer, heart disease, pneumonia and injury can be excluded.

5. Seventeen or approximately 4 per cent of the 500 had pneumonia at the onset of symptoms. It is imperative to bear in mind the possibility of tuberculous pneumonia if crisis does not occur as anticipated or if the patient has large hemorrhages. In this type of case, expectoration is usually profuse and positive sputums have been obtained as early as the third or fourth day. The distribution of the disease may be lobar or bronchial and frequently it is difficult to diagnose at the onset.

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6. Eleven or 2 per cent gave histories of chills and fever for days or weeks before the onset of any typical chest symptoms. The majority of these were treated for malaria long after the chest symptoms had become marked.

7. Seven patients insisted that they had persistent laryngeal symptoms such as hoarseness or pain with breathing or swallowing before any other symptoms appeared. Every physician should school himself in the use of the laryngeal mirror because laryngeal examination is usually easy and may be enlightening, not only in tuberculosis but in cancer of the larynx.

8. Three patients had had severe cough and mild expectoration for many years which gradually became worse until it finally incapacitated them. Of course, many others had carried a diagnosis of chronic bronchitis for months or years before the true cause of their disability was discovered. I feel that the diagnosis of chronic bronchitis should never be made without careful sputum examinations and chest roentgenograms.

Much has been written about the peculiar qualities of various signs and symptoms in tuberculosis. Cough, expectoration, hoarseness, fever, night sweats, chills, hemoptysis, streaked sputum, anorexia, vomiting, indigestion, emaciation, tachycardia, hypotension, anemia, nervous changes, chest pain and soreness or pleurisy may be present in any combination and the physician must train himself to think of tuberculosis in his daily practice and not wait for some particular series of symptoms.

No other procedures in diagnosis can take the place of careful and accurate physical examination. Every physician has been trained to do inspection, percussion and auscultation. However, we all too frequently forget some of the simplest and most informative procedures. We frequently attempt to do a chest examination with the patient partly clothed and thereby do not see the asymmetry, the decreased mobility, the atrophy of various muscle groups and the spasm of others which may be seen

in even the minimal case. No one should even consider a chest normal until he is certain that no post-tussal rales are present, and no one should consider a patient nontuberculous just because no rales are heard. Waiting for rales may be worse than waiting for a positive sputum before making a diagnosis.

The diagnosis of tuberculous infection is usually simple but the diagnosis of active tuberculosis may frequently be difficult. At this institution, the routine course in diagnosis is as follows:

1. History and physical examination.
2. Roentgen ray studies.
3. Laboratory studies, especially blood, urine and sputum. A blood study including red blood count, hemoglobin, white cell count, Schilling differential, Cutler sedimentation test, clotting time and Kahn test is made. I feel that the sedimentation test is as accurate an index of toxemia as Schilling differential counts in all but the most expert hands and is certainly much easier and simpler. Ten twenty-four hour sputum specimens are examined as a routine unless two contain tuberculosis bacilli sooner because the bacilli in the sputum is the only absolute undisputable proof of tuberculosis. However, the man who waits for the sputum to show bacilli before making a diagnosis of tuberculosis will miss most minimal cases and many advanced cases.

4. Clinical observation of a patient with not only a record of fever, pulse and respiration, but also observation of his temperament, personality and habits, is imperative in making a correct diagnosis.

Frequently, of course, special studies are required to complete a differential diagnosis, such as lipiodol to exclude bronchiectasis, and bronchoscopic examination to differentiate such conditions as malignancy and lung abscess.

In conclusion I ask each physician to think of tuberculosis in his daily work, not wait for some particular series of symptoms or signs.

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DIFFERENTIAL DIAGNOSIS OF CHRONIC PULMONARY DISEASES

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The various chronic pulmonary disorders seldom can be distinguished by the symptoms which they display. Productive cough, hemoptysis, chest pain and deterioration in general health may be encountered in tuberculous and in neoplastic, suppurative, parasitic and silicotic disease of the lung. The chief importance of the history, therefore, lies in focusing attention on the lung and initiating a careful and specialized diagnostic study to determine the specific nature of the underlying pulmonary pathological condition.

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History may be of the greatest importance and must include inquiry concerning the amount and character of the sputum. The expectoration of hair or teeth in the sputum usually denotes the existence of a dermoid cyst which has ruptured into a bronchus; the raising of grape-like cysts suggests pulmonary hydatid disease, and the expectoration of stones or gritty material following cough is characteristic of broncholithiasis. It must be admitted that all these conditions are uncommon, but the small effort involved in asking the question "Have you ever spat up anything of an unusual nature?" will occasionally be repaid. An occupational his-

tory is essential not only for the purpose of eliciting a background of predisposing factors in tuberculous or suppurative infections but also because it constitutes the most reliable indication of a pneumoconiosis. Quarriers, miners, pottery makers, glass workers, brass molders, sandblasters, and makers of scouring soaps and powders are among the occupational groups exposed to the silicosis hazard. Two other queries of value in the diagnosis of chronic lung ailments are: (1) Have you ever had a choking spell or any symptoms which suggested that a foreign object had slipped down the "wind-pipe"? (2) Have you used oily drops or solutions as a nasal spray, instillation or douche? If so, over how long a period? Lipoid pneumonia and foreign body aspiration are most frequently encountered in infancy but chronic pulmonary fibrosis and supuration attributable to these causes may occur in robust adults.

The object of physical examination of the chest is the evaluation of abnormal signs in terms of anatomical defects. Thus a flat percussion note, absence of breath sounds and deviation of the mediastinum away from the side of the lesion are ordinarily indicative of an accumulation of fluid in the pleural space. Although the character and location of the symptoms may suggest strongly a pulmonary disease, it is seldom advisable to base a diagnosis on physical signs alone. The roentgenograms commonly provide much more accurate evidence of the extent and character of anatomical alterations in the lung and pleura and a good film should be obtained whenever either a suspicious history or abnormal signs are elicited. The auscultatory determinations often aid in the interpretation of dense radiographic shadows, however, and may occasionally detect a lesion which has been overlooked on the film due to a superimposition of soft tissue or bony shadows. In the general physical examination special attention should be accorded to the supraclavicular and axillary lymph nodes, the position of the trachea, the eyes, nose, throat and fingers. Deviation of the trachea is a useful guide to shifts in the position of the upper mediastinum. Miosis and ptosis may reflect involvement of the cervical sympathetic chain in the upper posterior mediastinum. Since infection in the paranasal sinuses may be entirely responsible for productive cough in an occasional case the nose and throat must be carefully studied. The fingers are examined for clubbing and cyanosis.

Thorough sputum examination is essential. The most compelling reason is its specific help in the diagnosis of tuberculosis, the most frequent chronic lung ailment and the most important from the public health standpoint. When tubercle bacilli are discovered, an exact etiological diagnosis has been established. Failure to find acid fast organisms in direct smear preparations has scant significance and further methods, such as sputum concentration, culture and guinea pig inoculation, should be

employed. Several recent cases have convinced me that active tuberculosis may exist even when the sputum shows no tubercle bacilli by inoculation methods. In addition to these tests, therefore, a serial roentgen study may be necessary in suspicious cases to exclude progressive tuberculous disease. Macroscopic study of the sputum is not of great value in differential diagnosis. To be sure, a putrid odor indicates abscess formation but, on the other hand, it does not exclude the coexistence of infection by the tubercle bacillus. Cultures for fungi on Sabouraud's medium and sputum culture on blood agar should be studied in all obscure diseases. In the last year *Actinomyces* have been demonstrated culturally in five of our cases of pulmonary suppuration. The mere presence of fungi does not of course establish their pathogenicity or their responsibility for concomitant pulmonary processes. It is important, however, that special cultures be obtained whenever a case of lung abscess with insidious onset is encountered.

Special laboratory diagnostic methods should be applied to all aspirated pleural exudates. The guinea pig inoculation and culture are familiar. Section of the centrifugated sediment of an exudate after formalin fixation and paraffin embedding is frequently successful in proving the presence of malignant invasion of the pleura. Although carcinomatous effusions are often sanguineous, we have seen cancer cells in sections of the sediment from clear straw colored fluids.

Palpable supraclavicular and axillary nodes of unusual size or firmness should be removed for biopsy. Bronchiogenic carcinoma metastasizes to cervical nodes in a higher proportion of instances than does carcinoma of the stomach. Identification of the tumor in a removed node establishes both the identity of the pulmonary disease and the futility of attempting treatment by radical surgical extirpation of the cancerous lung. Aspiration biopsy may be performed in the study of tumors which lie in close proximity to the parietal pleura. A record syringe and 18 gauge needle are the only instruments necessary.

Other laboratory procedures are chiefly of value in detecting the activity of pulmonary infections. The differential white blood cell count and sedimentation rate deserve special mention in this connection. It is my belief that the merit of the tuberculin test is confined to its use as a diagnostic test in children and as a case finding procedure in the adult, denoting which individuals should receive detailed study to determine the presence or absence of clinical tuberculosis.

When the existence of tuberculosis cannot be proved in those patients presenting signs or symptoms of chronic pulmonary processes, diagnostic study of the bronchial tree should be pursued. The two principal procedures employed are iodized oil bronchography and bronchoscopy.

The chief factors essential to the successful use of lipiodol are: (1) the routine institution of pos-

tural drainage as a preliminary, (2) fluoroscopic control during the instillation, (3) control of excessive cough, when necessary, with opiates and (4) a thorough knowledge of the anatomy of the bronchial tree so that the patient may be properly positioned and the films be correctly interpreted. The use of fluoroscopic control plus attention to the patient's position permits the filling of any desired lobe and avoids the undesirable flooding of one particular area with oil. The principal value of bronchography is to demonstrate abnormal contours, dilatations or obstructions in the bronchi. It is further possible to localize these abnormalities to a particular bronchopulmonary segment. A positive diagnosis of bronchiectasis can be made readily. The etiological nature of bronchial obstructions is not shown, however, and must be determined by bronchoscopy.

Bronchoscopy is indicated in nearly all undiagnosed pulmonary disorders. The procedure is of

greatest value in the study of bronchiogenic tumors, a definite diagnosis having been established in close to 75 per cent of 300 cases at the Barnes Hospital Chest Service. Foreign bodies, strictures, ulcerations and broncholiths may also be disclosed in this manner. Since suppuration is often secondary to bronchial block, bronchoscopy should be routinely performed in cases of abscess and bronchiectasis. We have seen tubercle bacilli demonstrated in secretions aspirated through the bronchoscope after many negative examinations of the expectorated sputum.

Body section radiography with the laminagraph¹ has been helpful in many cases. The ability to secure an image at any one plane through the thorax aids greatly in the analysis of dense opacities. Hidden abscess cavities and tuberculous excavations are sharply demonstrated by this method.

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SANITARIUM TREATMENT OF TUBERCULOSIS

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Tuberculosis can be successfully treated any place where proper rest, proper food and properly graduated exercise can be obtained. There is no specific remedy for this disease, most methods employed being for the purpose of securing these three objectives. All surgical efforts are for the purpose of producing more rest to the affected part.

In solving the problem of the patient's diet there are disadvantages encountered in an institution that are not met in the home, provided the financial circumstances of the family are such that the proper food can be provided. Greater variety in the preparation of food can be obtained in a home than in an institution where the same food is prepared for great numbers at one time. In the home catering to the patient's likes and dislikes is often possible where it is impossible when the food must be prepared for many at one time. Whether or not this catering is good for the patient, of course, depends on the circumstances in the individual case. Although the food problem in a large sanitarium is often most perplexing to the management, it is by no means an insurmountable problem. In spite of the disadvantages, good nourishing meals can be served in an institution on a large scale. The other advantages of institutional care so much outweigh the disadvantages connected with the food problem that most phthisiologists today are of the opinion that practically all tuberculosis patients should have at least from three to six months' treatment in a sanitarium because of certain definite advan-

tages which the sanitarium has over the home. A few months' sojourn at an institution gives the patient a training that is most valuable in continuing the cure as well as protecting others against his disease.

As soon as a diagnosis of tuberculosis is made, the patient is confronted with the tremendous problem of adjusting himself to the situation. His plans, at least for the present, are upset. The shock of full realization of what it means to fight tuberculosis is great but this cannot be side stepped. He must come to a full realization of what it means before he can intelligently cooperate in the fight. Often the sympathies of well meaning friends increase his disappointment and add to the difficulties of his mental adjustment. If the patient is in a sanitarium with many others who are making, or have made, this mental adjustment, the task is much less difficult.

If a patient with tuberculosis wishes to arrest, and maintain arrested, his tuberculosis, he must make great and permanent adjustments in his mode of living. At first he has almost no conception of the extent and importance of these changes. His friends and family are usually no more aware of them than is he. His physician and nurse may emphasize them to both the patient and his family but their admonitions usually register only feebly. But when the patient is in a sanitarium, this information is largely conveyed to him by example of the older patients, and usually he falls in line. There are perhaps a few patients who because of their dispositions and temperaments cannot adjust themselves to sanitarium regime. In most such

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cases it means they cannot make the adjustments necessary to cure the disease and the fight is lost. Fortunately, however, the number of such individuals is relatively small and the great majority can make the adjustment. It is less difficult for some than for others but it often takes much patience and perseverance on the part of the physician to convince the patient of this necessity. No one, who has not experienced it, can understand what a colossal task in self disciplining the tuberculous patient must do to adjust himself to the new demands. It would seem that the patient being expected to discipline himself in this manner were burden enough but that is only half the story. He must also discipline his friends so that they will allow him to make the proper adjustment. They cannot understand why the patient, who frequently looks so well, cannot adjust himself to the convenience of his friends, especially with reference to accepting their sympathetic visits any time they choose to come since he "has nothing else to do." They fail to realize that his job of getting well is a greater task than is theirs although they be the managers of the largest corporations in the community. The sanitarium acts as a shield against these well meaning but terribly misdirected friends although even in an institution it is sometimes difficult to enforce some necessary regulations. For example, at Koch Hospital, the rest hours from 1 p. m. to 3 p. m. are termed absolute rest hours and patients are not allowed to talk, read or listen to the radio and are encouraged to make every effort to sleep. Activities on the ward are limited to simple necessities and employees speak in whispers. The result is that a great many patients develop the habit of sleeping daily at this time. It is obvious that this benefits the patient, yet occasionally visitors or relatives cannot understand why they are not permitted to visit their loved ones at this time. Sometimes it becomes necessary to station guards to prevent visitors from violating this rest period. Unfortunately in the home the patient must frequently allow his rest hours and routine to be violated in order to keep from insulting his well meaning but ill advised friends.

One of the main purposes of a sanitarium is to serve as a school where the patients learn how to get well and remain well and the institution is organized in detail for this purpose. In the home neither the private physician nor the nurse has the time to teach all this detail. In a sanitarium much of this is learned by contact with and example from the other patients. Besides learning to live in a manner which will enable him to get well and stay well, the patient must learn also how to protect his fellowmen from becoming infected.

At Robert Koch Hospital educational lectures on tuberculosis are given the patients by the resident medical staff. By means of a public address system these lectures are carried to earphones at the bedsides of patients who are too ill to attend the

patients' meeting in the auditorium. Education on tuberculosis is much easier in a sanitarium than in the home because once the information becomes known to a certain number in a large group it is passed on by word and deed from one to the other.

In my opinion the greatest help in obtaining and retaining an arrest of tuberculosis is the development of habits which result in a systematically ordered life, habits which develop a rigid routine to which the individual faithfully adheres. If this routine is once well established, time passes more quickly and rests much less heavily on the mind of the patient. He is more able to live for today and forget the morrow until it arrives. It is much more difficult to establish this routine in the home because special catering frequently breaks up the patient's routine and also because it is much easier for a patient to adopt a definite routine when he is surrounded by many others doing the same thing.

Brief reference to the routine of a large tuberculosis sanitarium may be of interest. While every patient is considered individually and exceptions are made when indicated, at Robert Koch Hospital all patients are classified into one of five classes with reference to rest and exercise. Patients' records are studied completely once a week by their physicians and reclassifications are made when indicated. The classes are roughly defined as (1) remains in bed at all times, (2) toilet privileges as designated by the physician, (3) full toilet privileges and such additional activities as physician may prescribe, (4) allowed sun parlor privileges and may attend church, shows and entertainments, (5) exercise as prescribed. These patients are expected to do such things as care for their own beds.

The daily schedule for patients follows:

6:00 a. m.—Preparation for breakfast.

6:45 a. m.—Breakfast.

8:00 to 9:30 a. m.—Rest period.

10:00 to 11:30 a. m.—Rest period.

12:00 noon—Dinner.

1:00 to 3:00 p. m.—Quiet rest hours during which there is no reading, writing or use of radio. Patients are expected to sleep.

3:30 to 4:30 p. m.—Rest period.

5:00 p. m.—Supper.

7:45 p. m.—Patients prepare for retiring and remain quiet.

8:00 p. m.—All patients to be in bed with lights off.

When the patient recovers sufficiently, exercise is prescribed in stated amounts at stated times each day so that by the time the arrested stage is reached, he has engaged in at least two hours' and usually more exercise daily over a period of at least two months. This exercise is accomplished in such ways as walking, helping with daily routine work in the institution, occupational therapy and office work in the patient organization.

Surgical procedure for pulmonary tuberculosis,

excepting perhaps pneumothorax, should be done in a hospital. Opinions differ as to whether it is better that operations be done in a general hospital or a sanitarium. My opinion is that, if facilities are available, it is better at a sanitarium. In the surgery of pulmonary tuberculosis, unlike surgery in many other diseases, the surgeon must of necessity play "second fiddle." This does not mean that the "second fiddle" may not carry the melody and lead the orchestra for a while, but eventually the treatment of pulmonary tuberculosis must be finished by the internist. Even during convalescence from an operation his vigil must not be relaxed. The patient must be kept as strictly to his routine as possible and the best place to maintain this is the sanitarium. Sending a patient to a general hospital where routines for tuberculosis patients are neither

practiced nor understood is like taking a child out of school.

Today much of the operative work for pulmonary tuberculosis is done by small stages. Often it cannot be stated in the beginning how much will have to be done. The decision as to when and how much more is to be done must be arrived at by careful and often prolonged observation by those specially trained in the treatment of tuberculosis. Consequently, the sanitarium should be the most desirable place to do this work.

Much more could be said about sanitarium treatment were space available, but suffice it to say that every tuberculosis patient, if at all possible, should have at least from three to six months' care in a tuberculosis sanitarium.

Robert Koch Hospital.

HOME TREATMENT OF PULMONARY TUBERCULOSIS

WILLIAM M. KINNEY, M.D.

JOPLIN, MO.

Sanatorium treatment of tuberculosis has brought about such marked improvement in the results obtained in this disease that there has grown in the minds of many physicians the feeling that tuberculosis cannot be successfully treated in the home. However, because many patients refuse to go to a sanatorium, or sanatorium treatment is not immediately available, home treatment often becomes necessary. If properly conducted it will produce fully as good results as sanatorium treatment.

With the exception of special types of treatment such as thoracoplasty or phrenicectomy, which require hospital facilities, there is no method of treatment used in a sanatorium that cannot be used at home. The chief difference between home and sanatorium care is in the environment. At home the patient is surrounded by people who are well, who are accustomed to arise in the morning and go about their daily tasks. The example set by them makes it difficult for the patient to remain in bed. In a sanatorium the patient is under the direct supervision of nurses and physicians and is surrounded by patients who, like himself, are undergoing treatment for tuberculosis. It is easier to perform a duty, particularly if it is an irksome one, in common with others than to do it alone. It is therefore easier to stay in bed at the sanatorium than at home.

Consequently it becomes necessary for the physician treating a patient at home to stress emphatically the importance of rest. It is not sufficient merely to tell the patient that he must rest. He must be told how he must rest; that it is not enough merely to lounge about the house in a chair or on a divan but that he must remove all of his clothing, get into his night clothing and go to bed.

Laymen are accustomed to thinking of illness in

terms of acute diseases in which recovery or death occurs in a few days or weeks. The physician must impress upon the patient and his family that it takes a great deal of time for the pathological process in the lung to heal completely, even after the symptoms of illness have disappeared. This is an important point for many patients lose their chances of getting well by getting out of bed too soon because their fever, cough and expectoration have subsided, and they have regained their normal weight, though as a matter of fact, they were far from cured.

Pneumothorax is as practicable in the home as in the sanatorium although it is not possible to remove the patient to a fluoroscope each time air is given. Some physicians feel that it is desirable to have patients come to the office for pneumothorax treatments because they like to use the fluoroscope before each injection of air and want to keep the patient under observation after the air is given. I have not found this to be necessary. I have found it much more satisfactory to take my pneumothorax machine and my assistant to the home during the period of induction of the pneumothorax. Only after a satisfactory collapse has been obtained and the progress of the patient's disease is arrested do I allow him to come to the office for treatment. Allowing the patient to put on his clothes and come to the office has a bad effect on the discipline which the doctor seeks to impose. The discovery that he can get out of bed and make the trip to the doctor's office without ill effects leads him to try other excursions without the doctor's knowledge.

I try to explain to my patients that the foods that keep a well person well are the best foods to help a sick patient recover. An ordinary well balanced diet is all that is necessary. However, because the patient does attach so much importance to the mat-

ter of diet, I have had mimeographed some diet sheets listing the various vitamins, foods that contain them, the various types of foods, the functions of fats, proteins and carbohydrates, and sample menus to illustrate a balanced daily diet.

Since there is no specific remedy for tuberculosis, medication is useful only to control troublesome symptoms. One should avoid as much as possible the habitual use of narcotics for cough and sedatives for sleeplessness. The patient must undergo a process of education to become adjusted to his situation. He should develop a habit of sleeping at certain times and should not learn to depend upon hypnotics to accomplish this end. Antipyretics are in my opinion to be condemned even though the patient demands them when he discovers he has a fever. Many physicians make it a practice to prescribe various vitamin preparations, particularly vitamin D, together with calcium in the form of calcium gluconate. However, it is my feeling that if the diet is adequate, these substances are not necessary; they merely add to the cost of treatment. On the other hand, they satisfy the patient's desire to take something and they certainly can do no harm.

Comfortable, well-ventilated quarters are essential, but fresh air should not be made a fetish to the point that the patient is subjected to the rigors of the outdoors in inclement weather. Artificial heat in the winter time is as comforting to a sick person as to a well one. Open gas fires however are undesirable as they deprive the air of oxygen and discharge the products of combustion into the air of the room. The carbon dioxide in the air plus the deficiency of oxygen increases the respiratory rate of the patient. This defeats the purpose of keeping the patient in bed which is to diminish the respiratory rate and as nearly as possible put the lungs at rest.

The physician of course must keep the patient under his constant supervision. Because of the long drawn-out nature of the illness, few patients can afford to pay the doctor for a daily visit. He should, however, call on the patient not less than once a week. He should have some member of the family or nurse keep a record of the patient's temperature in the intervals between his visits. He should instruct those responsible for keeping this record that the temperature is to be taken at certain times and at no others, and that the patient is not to have a thermometer constantly at his bedside. Patients develop a morbid concern about their temperatures and many develop a habit of taking it many times during the day and become much alarmed at insignificant fluctuations.

In the earlier stages of treatment I like to have a roentgenogram every month or six weeks. Later, one every three months is sufficient. A physical examination should of course be made at each visit. A sputum and sedimentation test should be done at least once a month. A sedimentation test is an invaluable index of the patient's progress. A single

reading at the end of an hour will give all the information that is needed.

Above all, a physician should encourage the patient and develop in him a sense of optimism, at the same time impressing upon him the seriousness of his condition and the necessity for rigidly adhering to the prescribed regime.

Tuberculosis seldom runs a smooth course toward recovery. Fluctuations in the patient's well-being are bound to occur. If they are important, the family should be informed, but the doctor should minimize to the patient any unfavorable symptoms by explaining that such things occur in the course of every case of tuberculosis and are to be expected. Mental rest is as important as physical rest and it does the patient no good for the doctor to give him the impression that he is getting worse.

In treating a case of tuberculosis, it must not be forgotten that the prophylactic treatment of the family is fully as important as the active treatment of the sick person. As soon as a diagnosis of active tuberculosis is made, everyone who has been in contact with the patient should have a roentgen ray examination of his chest. It is by this method that early curable cases are discovered. Those who show no disease should have this examination repeated at intervals of not longer than a year.

In order to prevent the transmission of germs from the patient to members of his family certain precautions are necessary. Here again specific instructions must be given. The patient should have a room to himself. He must be instructed never to cough without covering his mouth and he must never cough upon his bare hands. Each time he coughs he must use a clean sputum napkin which is then placed in a paper bag pinned to the side of his bed. I have found sputum napkins a much more satisfactory way of disposing of sputum than paper cups. The patient who uses only a cup, coughs and hacks into the air of the room without covering his mouth. If sputum napkins are provided for the disposal of sputum, the patient can be trained to first cover his mouth with a napkin, then expectorate into it, fold it and drop it into the paper bag which is later burned. All of the patient's toilet accessories should of course be kept separate from those of the rest of the family. Dishes should be boiled after each meal. Those entrusted with the nursing of the patient should be told that careful washing of their hands with soap and water after each contact with the patient is their best protection. They should be shown how to wash their hands in running water, not merely told to wash them.

Again I wish to emphasize that the home treatment of tuberculosis is no less satisfactory if properly conducted than sanatorium treatment. Its success depends entirely upon the personality of the physician and his ability to induce the patient to adhere to the prescribed regime.

Frisco Building.

SURGICAL PROCEDURES IN THE TREATMENT OF PULMONARY TUBERCULOSIS

J. L. MUDD, M.D.

ST. LOUIS

The surgical treatment of pulmonary tuberculosis is based on the idea of supplying added rest to a diseased lung. Many ideas have been advanced to bring about this desired rest, the most important ones being (1) artificial pneumothorax, (2) oleothorax, (3) intrapleural pneumolysis, (4) phrenic inhibition, (5) scaleniotomy, (6) multiple intercostal neurectomy, (7) extrapleural plombage, (8) extrapleural pneumothorax, and (9) extrapleural thoracoplasty.

By pneumothorax is meant the introduction of air into the pleural cavity. A complete pneumothorax is one in which the entire lung is collapsed. An incomplete pneumothorax is one in which adhesions prevent a complete collapse so that only part of the lung is collapsed. A selective pneumothorax is one in which only the diseased portion of the lung is collapsed. This is the ideal pneumothorax. It is not always possible to obtain a selective pneumothorax, but frequently by varying the intrapleural pressures the diseased portion of the lung will remain collapsed while the undiseased portion reexpands. It is a low tension pneumothorax.

The beneficial effects of pneumothorax are so well known that it is not necessary to dwell upon them. The air in the pleural space is gradually absorbed necessitating frequent refills, which vary somewhat with the amount of collapse one wishes to maintain and also with the individual. Some patients absorb the air more rapidly than others. In order to increase the time interval between refills, it was suggested that oil instead of air be used. Today, however, the use of oil is limited generally to the treatment of tuberculous empyema, the pus being replaced by oil, and in pneumothoraces where encroaching adhesions tend to obliterate the pneumothorax. My experience with oil, while limited, has not been very satisfactory.

Pleural adhesions often prevent collapse of the lung. To overcome this difficulty, Jacobaeus, of Stockholm, in 1913, suggested cauterizing these restraining adhesions through a thoracoscope under direct vision. Through a trocar opening, he introduced the lighted optic system and sighted the adhesions; then, through a second trocar opening, he introduced the actual cautery and severed the adhesions. Since that time many technical improvements have been made and the procedure is quite successful. It is being used more and more and many unsatisfactory pneumothoraces have been converted into satisfactory ones.

In 1911, Stuert, of Cologne, Germany, proposed

paralyzing the diaphragm on one side so as to relax the diseased lower lobe of the lung which could not be compressed by artificial pneumothorax.

The principal motor nerve supply to the diaphragm is the phrenic which is made up of branches from the third, fourth and fifth cervical roots and, occasionally, branches from the eighth cervical and first thoracic. In the neck the nerve has a downward and medial course and is usually found just beneath the fascia of the anterior scalenus muscle. It can be best exposed in the neck through an incision about 2 cms. above the clavical just posterior to the sternocleidomastoid muscle.

Temporary paralysis of the diaphragm may be brought about by: (1) simple severance of the nerve with immediate suture, regeneration usually taking place within four months; (2) alcohol injection with regeneration in about three to six months, the effect frequently being permanent, however; (3) freezing with ethyl chloride with rapid return of function in about one week, and (4) crushing the nerve causing a paralysis which lasts for from four to six months.

According to various authors, an accessory phrenic nerve exists in from 20 to 80 per cent of cases and in these cases paralysis does not occur when one of these procedures is carried out. In my own experience I have never failed to get paralysis with either crushing or alcohol injection. In order to interrupt the phrenic nerve and its accessory branches completely, Felix suggested avulsion of the phrenic nerve. The operation consists of exposing the nerve, severing it and pulling the distal portion out of the chest. If as much as 10 cms. of the nerve is resected, a satisfactory paralysis results. The resulting paralysis is permanent.

Since Stuert first suggested the procedure, many thousands of phrenic operations have been performed and the literature is filled with conflicting reports as to the effectiveness or uselessness of the operation. Some report series of cases with almost phenomenally good results, but these usually were cases with minimal lesions that were diagnosed early. Others report series of cases which tend to show that the operation is practically useless, these reports, however, usually being from clinics in which most of the cases are of the chronic fibrotic far advanced cavernous type.

At the Mount Saint Rose Sanatorium and at Koch Hospital, the majority of the cases belong to this latter class, so that if the arrest or cure of the disease was taken as the criterion for favorable results, the results would be disappointing; but if one considers the amelioration of symptoms, the disappearance of bacilli from the sputum, the production of fibrous tissue, the clearing up of lesions

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in the contralateral lung so that further operative procedures can be carried out, then I believe our results can be considered as favorable results.

The indications for phrenic interruption were as follows: (1) in cases which were considered favorable for pneumothorax but because of adhesions it was either impossible to find any free pleural space or the resulting pneumothorax was unsatisfactory; (2) in cases with bilateral lesion with or without cavitation (I have frequently seen lesions in the contralateral lung heal following a phrenic operation on the more diseased side); (3) formerly some form of phrenic paralysis was used routinely as a preliminary to thoracoplasty but now although practically abandoned as a routine it is used in selected cases; (4) supplementary to successful pneumothorax (I feel that permanent paralysis of the diaphragm is definitely indicated in those cases of pneumothorax where extensive lesions have been present and when complete re-expansion of the diseased lung might result in reactivating the disease, also in those cases where a successful pneumothorax must be terminated for any reason before completion of the treatment); (5) for the control of hemorrhage, and (6) in terminating cases for the relief of symptoms.

In the majority of my cases there was a reduction in fever, the amount of sputum was decreased and expectoration was definitely made easier. Many of the cases with positive sputum became bacilli free. Several cases which were considered as unsuitable for thoracoplasties because of bilateral lesions improved so much that apical thoracoplasty was performed with favorable results. In several cases with hemorrhage in which pneumothorax could not be done, phrenicectomy apparently controlled the hemorrhage.

Regarding the closure of cavities, my experience has been disappointing. If the cavity is of recent origin and with thin walls, regardless of its position in the lung, whether apical or basal, many of them will close following phrenic interruption. But if the cavity is of long standing with thick walls, phrenicectomy has little or no effect. In fact, I have seen some of these cavities enlarge following phrenic operations.

I believe that paralysis of the diaphragm has a definite place in our armamentarium for the treatment of pulmonary tuberculosis.

Scalenotomy, cutting of the scalen group of muscles in the neck to bring about immobility of the upper ribs, and intercostal neurectomy, removal of the intercostal nerves, have been advocated by some groups. I have never used either as an independent procedure.

Extrapleural pneumolysis and plombage is an old procedure and was first advocated by Tuffier in 1891. It consists of the removal of one or more ribs, separating the pleura from the endothoracic fascia and filling the space with paraffin, gauze packs, rubber dam or fat. Theoretically, plombage is an excellent procedure but, unfortunately, the

material inserted frequently acted as a foreign body and eroded through the pleura into the cavity in the lung, and the resulting condition was worse than before the treatment.

A variation of extrapleural plombage is extrapleural pneumothorax. The variation consists of closing the soft tissues tightly over the extrapleural pocket then, using a pneumothorax machine much in the same manner as in intrapleural pneumothorax, the extrapleural pocket is maintained by regular refills. Within the last two years the literature has been filled with glowing reports of the successful results of the extrapleural pneumothorax. Recently, however, some complications, such as infection and the loss of the pocket as a result of adhesions, have been appearing in the literature and it is my impression that the first wave of enthusiasm will give way to a more rational attitude toward extrapleural pneumothorax. It undoubtedly does have some place in the treatment of pulmonary tuberculosis.

When these measures fail to bring about the desired results, thoracoplasty may be considered. By a thoracoplasty is meant the removal of segments of the bony frame work of the chest and allowing the remaining soft parts to contract and thus narrow the hemithorax. Many types of thoracoplasties have been tried. As early as 1885 DeCorvenille reported four cases in which he resected as much as 3.5 cms. from the second and third ribs anteriorly to collapse a cavity in the apex.

Ludolph Brauer, of Hamburg, Germany, suggested the removal of all of the ribs on one side in a case where adhesions prevented the successful introduction of pneumothorax. In 1906, Frederick performed this operation. It was successful but the mortality in succeeding operations was so high due to shock and chest wall and mediastinal flutter that the operation gradually fell into decline. Wilms, of Heidelberg, in 1911, demonstrated that by removing small segments paravertebrally, a good collapse of underlying lung could be obtained and the danger of the old Brauer-Frederick operation could be avoided. Sauerbruch, of Berlin, formerly Frederick's assistant, popularized this type of operation. The modern thoracoplasty is a combination of the Brauer and the Wilms thoracoplasties. The ribs are removed paravertebrally but much larger sections than advocated by Wilms and Sauerbruch are being removed.

According to Brauer the ideal indications for thoracoplasty are: (1) unilateral involvement, (2) fibrous type of lesion or at least a tendency to fibrosis, (3) a fixed mediastinum, (4) a patient under 50 years of age and (5) good general condition.

I do not feel that it is essential that involvement is unilateral. I frequently have seen patients with bilateral lesions respond favorably to collapse therapy including thoracoplasty. If the worst side is collapsed, the lesion in the contralateral lung frequently improves. Bilateral apical thoracoplasties have been done.

There must be at least a tendency to fibrosis; this is simply another way of saying that the patient must show a tendency to heal his lesion if given an opportunity. The greater the tendency to fibrosis, the better the prognosis.

A fixed mediastinum is necessary because if the mediastinum is mobile, a thoracoplasty will simply shift the mediastinum to the opposite side and the diseased lung will remain uncollapsed.

Regarding age, I feel that a patient over 50 years old is not a good risk because of his general condition. I do not hesitate, however, to operate upon patients well over 50 years of age if their general condition is satisfactory.

In an uncomplicated pneumothorax, the lung contracts from all directions toward the hilum. In order to bring about this same relative anatomical result with a thoracoplasty, Semb, of Oslo, Norway, advocated extrapleural apicolysis. This consists of freeing the endothoracic fascia from the chest wall

over the apex of the lung, thus permitting the apex of the lung to drop down toward the hilum. Whenever possible, I carry out the Semb type of thoracoplasty. It is not always possible or desirous to do so.

As to the results of thoracoplasty, I am sure a study of the literature on this subject will convince the most skeptical that the benefits to be obtained far outweigh the risk involved. With an improved technic and a better selection of cases, the mortality rate has rapidly declined. In 1925, Dr. John Alexander reported an operative death rate of 14.1 per cent in a collected series of 1159 cases. The rate today is about 5 per cent or less.

I have tried briefly to review the surgical procedures in general use for the treatment of pulmonary tuberculosis by covering some of the history of collapse therapy and avoiding too much technical detail.

634 North Grand Boulevard.

MISSOURI TUBERCULOSIS ASSOCIATION

DONALD E. PRATT, Executive Secretary

ST. LOUIS

Press agents for the medical profession? Not press agents in the usual sense of the word but rather public relations counsels—counseling the public that the closer their relations with their doctor the better will be their health. This is one phase of the work of the Missouri Tuberculosis Association whose fundamental purpose and basic program are health education. This is a private health association, supported not by tax funds but by the annual sale of tuberculosis Christmas Seals. The majority of its executive committee is physicians and one fourth of its state-wide membership is physicians.

Health education comprises most of the activity of the organization and such slogans as "The man who treats himself has a fool for a physician," "You may have tuberculosis—let your doctor decide," "Your real friend in sickness—your doctor," "Tuberculosis undiscovered endangers you—hidden tuberculosis in apparently healthy people may be found by the tuberculin test and roentgen ray," are reiterated by literature, posters and speakers. All advice emphasizes that tuberculosis is contagious, curable, preventable; it takes the skill of a physician to discover early; that the cure is rest under medical supervision.

Last year health education was taken into a teaching institution in the state and three lectures were attended by 450 students each. It is planned to extend this series into other schools and ultimately into all colleges in the state.

Intensive case-finding work was done in nineteen counties in 1938 with the result that 199 active cases were found.

There were 217 fewer deaths from tuberculosis in Missouri in 1938 than in 1937 but 147 more cases were reported. The death rate for 1938 was 48.36 per 100,000 and 53.80 in 1937.

The Missouri Tuberculosis Association is glad that the State Medical Association has appointed a Committee on Tuberculosis and will welcome an opportunity to work with the Committee.

411 North 10th.

SULFANILAMIDE AND EAR INFECTIONS

Premature withdrawal of sulfanilamide in the treatment of infections of the middle ear may cause the disease to recur and to spread, John Marquis Converse, M.D., New York, warns in *The Journal of the American Medical Association* for October 7.

It is pointed out that treatment with the drug should be stopped only on clinical and laboratory evidence (blood tests) that the incriminating organism is no longer present. If the drug is stopped too soon the body's defensive mechanism is not prepared to deal with the remaining living streptococcal organisms and the patient has no immunity to his infection.

Dr. Converse believes that: "Sulfanilamide should be reserved for the treatment of spreading or life-endangering infections and it should not be used as an adjunct to the usual measures for the treatment of infections of minor severity."

TREATMENT OF GENITAL TUBERCULOSIS

Ultraviolet treatment for genital tuberculosis in preference to operation is recommended by Eli A. Miller, M.D., Denver, and Mischa J. Lustok, M.D., Spivak, Colo., who, in *The Journal of the American Medical Association* for October 7, report excellent results in fifteen such patients.

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NOVEMBER, 1939

EDITORIALS

PULMONARY TUBERCULOSIS: TOPIC OF THE MONTH

"Pulmonary Tuberculosis," including prevention, symptoms, diagnosis, sanatorium and home treatment and special treatment, is discussed in a symposium in this issue of *THE JOURNAL*. This is the first of a series of symposia on specific disease entities or health problems which will appear in *THE JOURNAL* during the winter months. Subjects of other symposia planned to appear in *THE JOURNAL* are barbituric acid, heart disease and high blood pressure, crippled children, industrial health, diphtheria and exanthematous diseases in children, new drugs and vitamins.

These symposia are presented as a part of the work of the Postgraduate Correlating Committee, a committee recommended by the House of Delegates at the 1938 Annual Session and composed of chairmen of all committees dealing with postgraduate work. Beginning with the December 1938 issue of *THE JOURNAL*, symposia have been presented on "Pneumonia," "Highway Accidents," "Syphilis," "Maternal Welfare," "Cancer," "Mental Health" and "Conservation of Eyesight."

The work of the Postgraduate Correlating Committee includes (1) selection of an appropriate topic each month to be emphasized in *THE JOURNAL* and encouragement to component societies to devote one program during the month to the subject selected, (2) continued cooperation with the State Board of Health in presentation of scientific and preventive health programs to physicians and lay audiences, (3) each committee to continue its individual work in correlation with the other committees, (4) encourage arrangements for addresses to laity in connection with postgraduate instruction to physicians, and (5) direct publicity and press releases on preventive health educational activities.

County medical societies are urged to devote one program during the month to the topic of the month discussed in *THE JOURNAL*, by round table discussion by members or by a postgraduate speaker if the subject is one on which the Society especially wishes to be addressed.

WHY DOES SMALLPOX CONTINUE?

The treatment of the majority of diseases is symptomatic; in only a comparative few is there specific treatment. This is also true in the prevention of disease; in most cases the methods of prevention might aptly be termed symptomatic. Medicine has developed some specific remedies and some specific preventives. It would seem that a disease for which a specific preventive is known should become extinct and it carries little discredit to the medical profession that this is not true. The physician cannot force prevention when the laity does not wish it and when laws do not compel it. His only possibility is to suggest it upon every opportunity.

Prevention of smallpox was an early accomplishment of medicine and yet today this most easily controlled disease known to mankind is by no means extinct. This is especially true in the United States where there were 15,000 cases in 1938, an increase from 11,673 cases in 1937. Only one other country, India, exceeds the United States in the number of cases of smallpox. The United States Public Health Service quotes the Health Organization of the League of Nations for 1936 showing that England and Wales with a population of 40,839,000 reported only twelve cases of smallpox; France with 41,906,000 population reported 273 cases, and Germany with a population of 67,906,000 reported no cases.

The occurrence of smallpox is not apportioned throughout the United States. New Jersey with a population of about 4,400,000 has had no case of smallpox in seven years and there were no cases reported in the New England and Middle Atlantic states in 1938. During the seven years in which New Jersey reported no cases the states of North Dakota, South Dakota, Montana, Idaho, Oregon, Wyoming and Utah, with a combined population less than that of New Jersey, reported more than 12,000 cases.

Missouri is in the group of states, the West North Central States, which had the largest total number of cases reported in 1938 and second in number of cases per 100,000 population.

The reason for the number of cases of smallpox is the lack of vaccination. And this lack of vaccination is probably due to the comparative mildness of the disease and the reduction of incidence in the last fifteen or twenty years. It is hoped that a virulent type of smallpox will not again appear and that it will not again reach epidemic proportion. It was just fifteen years ago that such an epidemic occurred in Minneapolis with 993 cases and 221 deaths. And in 1922 in Denver there were 1,718 cases with 285 deaths.

The experience of one state illustrates the unfortunate results of lack of vaccination. This state specifically prohibited compulsory vaccination and during the first twenty years approximately 3,000 cases, of a mild type, were reported annually. The next year a virulent form of the disease developed

in this state where the population as a whole was unvaccinated. Within twenty months 4,141 cases of the disease occurred taking more than 500 lives. Only seventy-two cases occurred in persons who had been vaccinated and only one person who had been successfully vaccinated died.

There is little doubt but that with proper vaccination smallpox can be greatly reduced and in most instances eliminated.

NEWS NOTES

Dr. Evarts A. Graham, St. Louis, addressed the Trudeau Club of St. Louis at a meeting on October 5 on "Observations of Chest Work in England."

Dr. H. L. Mantz, Kansas City, has been elected a member of the governing council of the Mississippi Valley Conference on Tuberculosis. The conference consists of twelve Mississippi Valley states.

Dr. C. W. Lane, St. Louis, will speak on "Treatment of Warts of All Types" at the second annual meeting of the American Academy of Dermatology and Syphilology at Philadelphia, November 6 to 8.

The board of trustees of the Missouri Hospital Association voted to offer its unqualified support to the Missouri State Medical Association in securing the passage of a basic science law. The action was taken at a meeting of the board on September 5.

Rear Admiral Ross T. McIntire, the Surgeon General of the Navy, has announced that an examination for commission in the Medical Corps of the Navy and for appointment as intern in the Medical Corps of the Navy will be held at all naval hospitals and at the Naval Medical School, Washington, D. C., beginning November 6. Men interested in the examination should write the Surgeon General, United States Navy, Bureau of Medicine and Surgery, Navy Department, Washington, D. C., for further information.

The opening of the Library and Museum of Medical History of the University of Kansas School of Medicine, Kansas City, Kansas, will be inaugurated by the first of a series of lectures on medical history to which Missouri physicians are invited. On October 9 Dr. Sanford V. Larkey, Baltimore, will speak on "Primitive Medicine" and "Egyptian Medicine." On January 15, 1940, Dr. John Farquahar Fulton, New Haven, will talk on "History of Physiology." On March 4, Dr. Henry E. Sigerist, Baltimore, will discuss "The Methods of Medical History," and "The Future of Medicine in the Light of History." On March 11 Dr. Chauncey D. Leake,

San Francisco, will speak on "The History of the Development of Therapeutic Drugs," and "The History of Anesthesia."

Dr. August A. Werner, St. Louis, was a guest of the State Medical Society of Wisconsin at its annual meeting in Milwaukee, September 13 to 15. He conducted a round table discussion and spoke on "Sex Hormones." Dr. Werner presented an address on "The Menopause and Its Treatment" and an exhibit at the American Congress on Obstetrics and Gynecology at Cleveland, September 11 to 15.

Recently a man has obtained money from several oculists in Missouri and Iowa by obtaining change on a bad check. He has endorsed checks for \$30, obtaining change over the amount of the glasses, and not returning for the glasses. He has been dressed to appear as a farmer, is about 5 feet 9 inches tall, weighs about 155 pounds, has light sandy hair, blue eyes, is smooth shaven with a ruddy complexion. He has endorsed some of the checks as W. C. Curran. The sheriffs of Nodaway County at Maryville and of Grundy County at Trenton wish to be notified of his apprehension.

Former students of Dr. Evarts A. Graham, St. Louis, honored him on his twentieth anniversary as professor of surgery at Washington University School of Medicine on October 11 and 12. A two day scientific program, presented by men attending the session, dealt with the work they are doing at present. Surgeons came from many parts of this country and Canada to attend the meeting and one was from Melbourne, Australia. Several men teaching or practicing in England had planned to attend the meeting but were unable to do so because of the war. The celebration closed with a dinner at the Chase Hotel.

The Southern Medical Association will convene at Memphis for its thirty-third annual meeting November 21 to 24. The program will follow the general plan of former meetings. Tuesday will be "Memphis Day," a program of short clinical presentations by physicians of Memphis. A program arranged for the laity will be presented on Tuesday evening. A general clinical session will be conducted on Wednesday morning and the nineteen sections will begin their sessions in the afternoon. On Wednesday evening the president, Dr. Walter E. Vest, Huntington, West Virginia, will present his address to be followed by the President's Reception and Ball. Alumni reunions will be held on Thursday evening. The Frisco Railroad will run a "Southern Medical" special train leaving St. Louis at 11:30 p. m., November 20, and arriving in Memphis early the next morning where sleepers will be set out. Schedules of regular trains to and from Memphis appear in the advertising section.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Tablets Cevitamic Acid—Abbott, 0.05 Gm.

Parke, Davis & Co.

Ampoules Adrenalin in Oil, 1 cc.

Riedel-de Haen, Inc.

Ampoules Solution Decholin-Sodium, 20%, 3 cc.

Sharp & Dohme

Immune Globulin (Human)

Smith-Dorsey Co.

Tablets Nicotinic Acid, 50 mg.

Tablets Ascorbic Acid, 25 mg.

Frederick Stearns & Co.

Stearns Viosterol (A.R.P.I. Process) in Oil

Stearns Cod Liver Oil Concentrate in Vegetable Oil

Stearns Cod Liver Oil Concentrate Capsules, 3 minims

Stearns Cod Liver Oil Vitamin Concentrate Tablets

Stearns Halibut Liver Oil Plain

Stearns Halibut Liver Oil Plain, Capsules, 3 minims

Stearns Halibut Liver Oil with Viosterol (A.R.P.I. Process)

Stearns Halibut Liver Oil with Viosterol (A.R.P.I. Process) (with other fish liver oils) Capsules

The following product has been accepted for inclusion in the list of Articles and Brands Accepted by the Council But Not Described in N.N.R. (New and Nonofficial Remedies, 1939, p. 528):

The Emergency Antidote Kit Company

Emergency Antidote Kit (Jacobson)

ORGANIZATION ACTIVITIES

THE "INTEGRATIVE" BELGIAN MEDICAL PRACTICE LAW

The Committee on Study of Medical Practice Laws, Dr. Lec D. Cady, St. Louis, Chairman, has made a study and the following digest of the Belgian Medical Practice Law.

The law was passed by the Belgian Legislature in 1938 and created an Order of Physicians of which all who would practice the healing art must become members.

The structure of the Order includes (1) Provincial Council, (2) Superior Council, (3) Appeals Council, and (4) the Supreme Court (cour de cassation).

The provincial councils of the Order have jurisdiction over the licensed practitioners of medicine residing in the provinces. (Provisions are made regarding the use of the two official languages.)

The King specifies the number of the members and alternates (licensed practitioners) of the Council and the members elect them for a term of four years. Failing to take part in elections is punishable by reprimand. Changes of venue, appeals and injunctions may be had as regards the actions of a particular council.

The Council is charged with maintaining the rules of medical ethics, the honor, discretion and dignity of professional practice. It may decide professional fees when grave infractions of the professional probity are involved, on the request of both parties to the dispute, or in response to request of courts. No decisions can be based on the aims of religion, philosophy, politics, nationality or membership in associations, nor on the fact that the defendant physician is involved in contract practice.

The Council members must not be absent from two consecutive duly called meetings without acceptable excuses. They elect from their own number a president, a vice president and a secretary. The qualifications of these officers are determined by the King. These officers also constitute the bureau or executive committee of the Council which investigates and submits cases to the Council. Furthermore, the Council is assisted by a magistrate appointed by the King.

The Council can render the following sentences: warning, censure, reprimand, suspension of license to practice for not more than two years and revocation of license to practice medicine in Belgium. Persons under sentence of suspension or revocation forfeit their rights in the Order and are subject to civil prosecution for practicing without a license. Sentences of the Council become effective after thirty days, but appeals, injunctions or review by the Supreme Court predominate. The president, the law member or the parties to the cause may make appeals during this thirty day delay period.

The Superior Council of the Order has one member elected by each provincial Council and four members appointed from the faculties of the four medical schools, and a magistrate appointed by the King. This Council is divided into two sections because of the two official languages of Belgium. However, the magistrate (the president) appointed by the King to preside, may preside over both sections if he knows both languages. Each section elects from its membership a vice president and secretary.

The Supreme Council has duties similar to the provincial councils in addition to collecting the decisions of various councils, and maintaining and augmenting the jurisprudence of ethics. It also represents the Order in the courts.

The Appeals Council of the Order is composed of three attorneys (magistrates) appointed by the King from the appellate court. One of them assumes the function of president and all three have a deliberative voice. Three medical members are appointed from the membership of provincial councils, ex-

cluding those whose Council may have had original jurisdiction. The decisions of the Appeals Council are subject to review by the supreme court. The attorney-general may appear in the supreme court in the interest of the state.

The members of the various councils are held to the usual professional secrecy of privileged medical communications.

The Order may have only such real and personal property which may be necessary to carry out its functions. The King may give consent for the Order to receive bequests which might be of profit to the Order. The Order has the right to assess and collect dues. Disciplining procedures can be used for nonpayment of dues.

OBITUARY

JOHN H. TIMBERMAN, M.D.

Dr. John H. Timberman, Chillicothe, a graduate of the St. Louis University School of Medicine, 1906, died at his home of a heart attack August 22, aged 63 years.

Dr. Timberman was born in Dunklin County, Missouri, the son of the late Dr. John D. Timberman. He received his early education at Point Pleasant and West Plains. He began his practice at Marston and continued there until he entered service in the World War in 1917 in the aviation service as a flight surgeon. He was made a captain and later a major in the Reserves. He practiced in San Antonio, Texas, for a year after his service in the army, then moved to Chillicothe where he took over the practice of the late Dr. J. C. Shelton and confined his work to eye, ear, nose and throat.

He became active in organized medicine early in his career and continued this interest throughout his life. He served the Caldwell-Livingston County Medical Society as delegate to many annual sessions and was Councilor for his district for many years.

He is survived by his widow, Mrs. Edna Hammond Timberman, and one sister.

LEX GLIN McCUTCHEN, M.D.

Dr. Lex Glin McCutchen, St. Louis, was born October 12, 1894, in Templeton, Tennessee. He came from a large family, having four brothers and one sister. Although largely dependent on their own resources for an education, they all took up professional careers; two of his brothers became dentists, one a pharmacist and the other a lawyer. His early childhood was spent in Caruthersville where he obtained his elementary education. After the death of his father, which occurred when he was still a young boy, his family moved to St. Louis. He remained at Caruthersville to complete his grammar school education and then joined his family in St. Louis.

He attended high school in St. Louis and entered Washington University. At the time of the World War he was enrolled as a student at this institution, and he joined the Medical Reserve Corps but was never called to active duty. He received his degree in medicine from St. Louis University in 1924.

During his student days he developed an interest in radiology and worked in the X-ray department at the City Hospital to further his knowledge in this subject. After graduation he interned at the St. Louis City Hospital, always continuing his interest in this field. He was always energetic and worked hard for everything that he got. He was an individualist, quiet in his way,

yet resolute in the pursuit of his policy once his decision was made. After service in the Radiology Department at the City Hospital he went into the practice of radiology as a specialty.

His first appointment was at the St. Louis City Sanitarium in 1925, a position which he held until his death. A few years later he was appointed radiologist to St. Mary's Infirmary and through this appointment became affiliated with St. Louis University Medical School. He advanced in his position with the school to associate radiologist, a position he held at the time of his death. When the activities of St. Mary's Infirmary were transferred to Firmin Desloge Hospital his appointment was continued with the school at this institution also.

During his professional career he made numerous presentations before the St. Louis Medical Society and the Radiological Society of North America, chiefly as an exponent of bi-plane fluoroscopy in the reduction of fractures with his portable fracture device. He introduced the Chaoul method of contact therapy to St. Louis.

On March 31, 1939, he was suddenly stricken with a heart attack while at work at the Firmin Desloge Hospital and passed away a few hours later. He is survived by his widow, Mrs. Vera Fay McCutchen, and two daughters.

His death has deprived his family of a devoted husband and father, who cherished their companionship. His friends have lost a true companion, his students a faithful teacher. His patients and colleagues have lost the service of a sincere physician.—L. R. S. in the *Weekly Bulletin of the St. Louis Medical Society*.

HENRY SPENCE BROOKES, M.D.

Dr. Henry Spence Brookes, St. Louis, was born July 31, 1858. He attended the Franklin School, then graduated from the old Central High School. Thereafter he spent three years as a pharmacist's apprentice and drug clerk in St. Louis, attending the St. Louis College of Pharmacy at the same time. He was valedictorian of the graduating class of 1879. He was engaged in the drug business at Denver, Colorado, in 1880.

He took his medical training at the St. Louis Medical College, 1881 to 1884, conducting the prescription departments there and at St. Luke's Hospital at the same time.

After graduating he was intern at the St. Louis City Hospital, during which time he made a daily trip on horseback to the Workhouse on South Broadway to attend the sick prisoners there. During the following year he was senior intern at the Female Hospital.

Dr. Brookes was married on May 13, 1886, to Mary Louisa Prewitt, daughter of the late Dr. Theodore F. Prewitt. There are seven children, thirteen grandchildren and two great grandchildren. His two sons, Drs. Theodore P. Brookes and Henry S. Brookes, Jr., are physicians in St. Louis.

In 1886 he was for a few months clinical associate of the late Dr. L. Ch. Boislaniere in the gynecological clinic of the St. Louis Medical College. He resigned to become clinical associate of Dr. Justin Steer at Missouri Medical College and St. John's Hospital. He later became clinical professor of medicine at Missouri Medical College and held that position until the merger of the two schools into the Department of Medicine of Washington University in 1899. He was unwilling to undertake full-time teaching but conducted the medical clinic at St. John's Hospital and after 1903 at O'Fallon Dispensary and also lectured on materia medica at Washington University until 1910.

He worked hard at his profession, never losing a day from illness, and never taking a vacation of longer than three weeks except for a trip to Europe and one to Alaska. He made the change from carriage to automo-

bile as early as 1904 and always accepted calls scattered widely over the city and county.

He was equally devoted to his profession, his family, and his church. For about thirty-five years he was ruling elder of the Presbyterian Church where he was in regular attendance at the services. His absence on the Sunday morning when he was stricken was so unusual that the pastor called at the Brookes home to inquire the reason.

Dr. Brookes saw his last patient at 9 p. m. on Saturday, May 13. At 7 a. m. of the 14th he suffered a severe precordial pain accompanied by a collapse. Other seizures continued during the day but he noted his own pulse and repeatedly asked for the blood pressure readings as well as other information. From his own statements it was evident that he recognized the seriousness of the attack. On the next day he became semi-conscious and died peacefully at 2:30 a. m. on Tuesday, May 16.

For most of the fifty-five years of his professional career he attended the meetings of his society regularly and was a liberal contributor to every movement of the organized medical profession. Furthermore, he might have accepted an honorary membership more than a decade ago, yet he chose to pay the full dues of an active member, such as he was, to the very end of his days—a noble and ambitious gesture of a clear mind in the fourth score of his years.

It is a blessing that one so active as Dr. Brookes was spared the pangs of an enforced inactivity and the tortures of a prolonged suffering. To Mrs. Brookes, with their children, grandchildren and great grandchildren, we extend a heartfelt sympathy. They can be assured that many of us will long cherish the sacred memory of our departed colleague.—R. E. S. in the *Weekly Bulletin of the St. Louis Medical Society*.

BOOKS FOR LEISURE MOMENTS

PRIESTS OF LUCINA

"Lucina, Genitalis thou, Or Eiliuthia, favor now our mothers. Help to bring aright ripe, healthful issue into light."—*Horace*.

The goddess of childbirth was Juno Lucina. The modern physician, be he called obstetrician, accoucheur, man midwife or "navel cutter," if he is serious in his interest in the welfare of the gravid woman, is a Priest of Lucina. Even as an altar boy his service is none the less important. There is an imposing procession of priests of Lucina originating in antiquity, whose footsteps are faintly heard in the beginning, but whose tramp becomes louder and more authoritative as the centuries pass until today young men are being trained to the priesthood as never before, to respect the welfare of mothers and to equip themselves for the most efficient service to them. Governments are concerned, laymen are aroused, but the priests of Lucina continue their parade of accomplishment from the Cro-Magnon "Venus of Willendorf" to our modern, scientific obstetrical geniuses. A parade of giants it is, who through centuries of ignorance, semi-enlightenment, moments of inspiration and ages of persecution have increased the stature of their kind into the present day of scientific freedom, knowledge and accomplishment.

A famous medical historian said that the best medical histories are written by those who are intensely interested in one branch of medicine and write about that branch alone. Many great historians have written of obstetrics for it is of fundamental interest, but few have written the inspiring story of the obstetricians.

Dr. Palmer Findley, Professor of Obstetrics and able medical historian for decades, presents for the first time in English the story of obstetrics from its origin until the present day "Priests of Lucina." He presents the

giants in the parade as vital, human personalities. Able, ignorant, but striving always for new knowledge, these men are to be honored for the vast amount that they knew and never condemned for their errors. Moral, religious, political and social barriers were terrors to the true researcher of medieval times. Gradually this state of affairs has been relieved. With all its truth, its romance, its thrill and its human significance there is portrayed in this book the complete, fascinating story of obstetrics. (Little Brown & Co., Boston.)

Intriguing suggestions of obstetrical history are found in Cro-Magnon and more recent archeological excavations. The mystery that has surrounded procreation from antiquity unto the present day has been suggested in primitive as well as modern art. Ancient legends are recognized in the superstitions of today.

The Chinese, ancient culture though they possessed, had little medical knowledge. Their pharmacopeia in antiquity contained data on the value of opium, mercury and aconite. Their surgery was limited to castration; at the same period they had knowledge of refraction with glass lenses and of inoculation for smallpox. Obstetrically, still in darkness, there was among their ten blood hells a "Bloody Lake" reserved for mothers who lost their lives in childbirth.

The author provides an interesting parade of legend and superstition led by the Greek civilization when critical judgment appears for the first time in written record. Hippocrates, great man that he was, taught that the fetus sat placidly on the brim of the pelvis and took a "header" into the outer world, and that the fetus spent its spare intra-uterine time in learning to suckle. The parade continues with Soranus of Ephesus, "The Obstetrician of Antiquity"; Galen, the egotistical, extravagant, vain, dogmatic, abstract thinker, who exercised a longer and more tyrannical sway over medical knowledge than any man in history.

Omitting certain minor but interesting members of the parade, we see those of the Middle Ages. Of the Arabs there was the Great Rhazes who, among other discoveries, learned to plan where hospitals should be built by hanging meat in various parts of the city and building hospitals where the meat was the last to spoil.

Albertus Magnus gave us marvellous means for determining the sex of the unborn, the secrets of gestation, tests for fertility, explanation of menses, tests of conception based on the time of coitus, all of which represented more of the curiosity of our forebears than of their scientific accuracy.

The parade proceeds into the Renaissance when in midwifery there appeared a movement to undermine all phases of ancient medicine. "Das Frauenbuchlein" of the fifteenth century, preceded by the well known "Roengarten," is by far the most interesting of the books of the time dealing with obstetrics. "The Byrthe of Mankynde" is the English version. Here, in good old English we learn the terms, "Retention of flowers" for delayed menses, "fretting and gnawing of the guts," "outrageous flux of flowers" for menorrhagia, "to be born after the fashion of the Caesars," "beleye muskels," "mother port," "women's stones" and the "Wormye bodye" (fallopian tubes).

Later in the procession appears Ambroise Pare, the versionist, and Guillemeau, who in the name of suffering women, entreated, "Oh, race of man, that you employ your time and leisure poorly. Alas, we are not dying, but they torture us, because those who are reputed to be the most expert among us do not treat us as is proper. You who fill up (or cram) the books and burden the libraries with your writings on some trivial matters, and on the least of your ailments, while we are crushed by hard and unendurable torments and grievous anguish, without your writings making mention of us in any wise."

In 1601, Scipio Mercurio tells us in detail how to per-

form a cesarean section. William Harvey exposes the secrets of embryology and the circulation of blood.

In the seventeenth century Mauriceau tells why babies are born face down, the significance of its first cry and the last cry of its mother. Adam and Eve are important.

After Portal and Peu, Van Deventer gives us the qualifications for men midwives including the "virtues of chastity, bashfulness and modesty, nor should they be rash swearers, drinkers or company keepers."

In the seventeenth century there occurred the birth of obstetrical science. The forceps were invented and version was popularized, cesarean operations on the living were attempted and anatomy and physiology were encouraged.

Smellie is presented as the first artist with the forceps as well as teacher of mannikin procedures. William Hunter, Ould and Denam, Bard and Baudeloque are introduced.

In America, Shippen, Dewees, Stearns, Meigs, Hodge and Channing are presented with their special contributions to progress in obstetrics. Then J. Y. Simpson, the discoverer of anesthesia in obstetrics, the uterine sound and the modern forceps finds his proper place in medical history. Wright, Naegele, Michaelis and Crede pass by with their important contributions.

Oliver Wendell Holmes and Semmelweis vie for honors in the argument over puerperal sepsis. Braxton Hicks, the saviour of women with placenta praevia, Duncan, the enemy of hemorrhage, and finally J. Whitridge Williams, the lamented teacher and investigator, are presented to us in all the honor and glory to which they are entitled.

The parade of great ones ended, the author's discussion of certain special phases of obstetrics, of the science of anatomy, the forceps and the midwife occupy a large part. In regard to the latter we hear of "navel cutters," "Dame Trot," Madame La Pere, the abortionist to several million women, and the story of sepsis.

This book, by Palmer Findley, is rich in historic data, superstitious lore and the facts of scientific advance. The antiquarian will be pleased, the reader of medical history will find information of which he was unaware. The modernist will find that the Priests of Lucina of present times are striving as those before them to find truth and to convert unbelievers to believers, by the provable fact that maternal and infant mortality can be reduced to a minimum with the aid of science and common sense.

B. G. H.

THERE IS NO WHITE LIE

Dr. Richard C. Cabot, erstwhile chief of the medical staff at Massachusetts General Hospital and Professor of Social Ethics at Harvard University, devotes the first 319 pages of his latest book, "Honesty" (Macmillan Company, New York) to prove that lies are never to be justified. Then on pages 320 and 321 he describes a new kind of lie, the heroic lie. That he considers entirely proper. He admires Desdemona dying by the hand of the Black Moor, the more for her answer to the question, "Who hath done this deed?" Almost with her last breath she replies, "Nobody. I myself. Farewell. Commend me to my kind Lord." That is the lie heroic. And that is the only tolerable lie.

The comment of a friend who after starting the volume said, "But I can't keep on reading a book that says the same thing on every page," affords an apt description of the whole.

Nevertheless there is much within it that is of particular concern to the physician. Cabot urges the utmost honesty in dealing with patients whether they be the poor, ministered to with the aid of the social service worker, or the wealthy. In the first instance he deplors the betrayal of the patient's confidence by the social worker whose chief job should be to instill confidence.

He insists that the patient has a right to know the truth about his illness. Whether it be cancer permitting only a few months more of life or heart disease demanding a very much curtailed program, the patient must be told. If the physician be ignorant of the cause of the symptoms the patient must be told and made to understand the necessity for continued observation.

Honesty, the author insists, is a habit. It may be cultivated to the point that it is automatic. Its opposite results in fear, worry, crippling preoccupation and is socially indefensible. It breeds a form of self-deceit that may lead to moral stagnation.

B. Y. G.

MEDICINE MARCHES ON

It betrays an unfortunate something or other when a Past President of the American Medical Association publicly describes himself as "fallen from grace." Yet Ray Lyman Wilbur who delivered his inaugural address at the Seventy-Fourth Annual Session of the Association in 1923 used those words in the course of his address before the Milbank Memorial Fund Board less than ten years later. Perhaps it betrays the tempo of the last decade.

Ray Lyman Wilbur's first official position was rural health officer; his present, President of Stanford University. During a long career of public service he has found time to occupy a position in a presidential cabinet, to be active in the effort to carry medicine to the people. During the course of these exertions he delivered countless lectures. Twenty-nine lectures having to do with medical matters have been collected into a single volume by the Stanford University Press under the title, "The March of Medicine."

Space considerations make it impracticable to attempt a review of the whole volume of nearly 300 pages. Perhaps of nearly as much interest as any other subject which has occupied Wilbur's mind is that having to do with the medical curriculum. Critics have long condemned it. They have decried the waste of years which it imposes upon the young man. They have vented their spleen upon the useless impedimenta of the medical school, the long hours wasted in learning laboratory technic, the dissociation of physician, student and patient and the expatiation over the rare case which the average physician will not see in a lifetime of practice.

Wilbur, like the critics, is appalled by the waste. He proposes a shorter course, a different system of instruction designed to turn out practical physicians, men who will become general practitioners, later specialize if they desire. In brief he summarizes the substance of several addresses: "Retain only the broader divisions in the medical school and curriculum; make all lectures optional and all examinations practical; free physiology, anatomy and bacteriology from their present slavery to the medical curriculum and the medical school. After adequate fundamental college training which is not too specific as to details, give the prospective medical student who already knows something of chemistry, biology, anatomy and physiology three calendar years of actual contact with the inpatient and the outpatient and the laboratory under the guidance of a teacher but doing most of the work himself."

There is substance to these thoughtful discourses. They serve to pass in review the current medical scene. Many of us cannot honestly agree with all of the conclusions voiced by President Wilbur. Nevertheless the broadness of his point of view and the meticulous care with which he has assembled his data should insure a careful reading of the volume. Perhaps through its study we may be able to prevent a debacle in modern medicine. We venture to hope that the future will see this distinguished and honored physician restored to "grace" in recognition of his outstanding social consciousness.

B. Y. G.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.
Perry County Medical Society, December 15, 1938.
Camden County Medical Society, December 23, 1938.
Ste. Genevieve County Medical Society, December 23, 1938.
Dent County Medical Society, January 25, 1939.
Stoddard County Medical Society, January 30, 1939.
Howard County Medical Society, February 15, 1939.
Macon County Medical Society, February 22, 1939.
Johnson County Medical Society, February 25, 1939.
Morgan County Medical Society, March 21, 1939.
Webster County Medical Society, March 28, 1939.
Carter-Shannon County Medical Society, March 30, 1939.
Holt County Medical Society, March 31, 1939.
Bates County Medical Society, April 1, 1939.
Lincoln County Medical Society, April 5, 1939.
Miller County Medical Society, April 5, 1939.
Moniteau County Medical Society, April 5, 1939.
Barry County Medical Society, April 6, 1939.
DeKalb County Medical Society, May 23, 1939.
St. Francois-Iron-Madison-Washington-Reynolds County Medical Society, July 20, 1939.
Mercer County Medical Society, July 21, 1939.
Linn County Medical Society, August 1, 1939.
Pettis County Medical Society, August 8, 1939.

ASSOCIATE EDITORS: COUNCILORS OF THE
TEN COUNCILOR DISTRICTS

FIFTH COUNCILOR DISTRICT

W. A. BLOOM, FAYETTE, COUNCILOR

Boone County Medical Society

The Boone County Medical Society met at the Boone County Hospital, Columbia, September 5, at 7:45 p. m.

The secretary read a summary of the picnic commemorating the fiftieth anniversary of Dr. F. G. Nifong in the practice of medicine. Dr. D. A. Robnett, Columbia, moved that a copy of the proceedings for this meeting be sent to Dr. Nifong together with an earnest request that Dr. Nifong continue his activity in the Society in the same manner that he had in the past. The motion was seconded by Dr. William B. Brown, Columbia, and carried.

The secretary read the minutes of the special meeting held June 14 at which the approval of the Society for the entrance of the Boone County Hospital into Group Hospital Service until the University Hospitals could be added to the list was discussed and passed upon.

A request of Dr. William B. Brown for the approval of the Society of an educational program at Stephens College to include well known speakers to appear before the student body was referred to a committee.

Mr. William Becker gave an interesting discussion of the relation of a coroner to a physician. He emphasized particularly the proper preparation of the death certificates and cited numerous instances in which the improper signatures had caused considerable trouble. The talk provoked much discussion and was extremely well received.

Meeting of October 3

The Society met at the Boone County Hospital at 7:45 p. m.

Dr. William B. Brown, Columbia, requested information on Group Hospital Service and was told that both hospitals had been approved for contracts with Group Hospital Service but that the only individuals now enrolled were certain members of the Missouri Farm Bureau in the county. He was assured that action would be forthcoming in the near future.

Dr. S. D. Smith, Columbia, discussed plans offered by insurance companies regarding the hospitalization of its policyholders.

Dr. William B. Brown conveyed the invitation of Dr. James M. Wood, president of Stephens College, to the Society to be the guests of the college for the regular annual dinner meeting to be held December 5. Upon motion of Dr. C. M. Sneed, Columbia, the invitation was accepted with thanks.

Dr. Robert H. Simpson, Columbia, discussed Dr. Percy's Clinic at the Los Angeles General Hospital, giving a number of case studies on use of cautery in surgery. A general discussion followed.

M. E. COOPER, M.D., Secretary.

SEVENTH COUNCILOR DISTRICT

E. P. HELLER, KANSAS CITY, COUNCILOR

Jackson County Medical Society inaugurated its 1939-1940 season with an unusual new type scientific meeting on Tuesday evening, September 26. Motion pictures for fun and science and the personal appearance and addresses of distinguished guests, together with food, drink and good fellowship combined to bring out one of the largest audiences for a scientific meeting in the history of the organization. Every age and specialty was represented.

Following a cartoon comedy film, a sound film of a Pediatric Clinic on Pneumonia by Dr. Isaac A. Abt was presented. Dr. Alexis F. Hartmann and Dr. H. L. Barnett, St. Louis, discussed the treatment of pneumonia and other diseases by sulfanilamide and sulfapyridine. It was also the good fortune of the audience to have present Dr. E. E. Osgood, assistant professor of medicine and biochemistry at the University of Oregon School of Medicine, who reported results of studies of sulfanilamide and its related compounds in the Northwest.

The Seventeenth Annual Fall Conference of the Kansas City Southwest Clinical Society was concluded on

October 5. Seventeen guest speakers and forty-eight members contributed to one of the most outstanding meetings ever conducted by the Clinical Society. Registrants came from ten states in this area.

Group Hospital Service, Inc., of Kansas City, enters its fifteenth month with 33,000 members, covering all phases of industrial and business life in greater Kansas City. Some 2,300 cases have been hospitalized, and disbursements approximating \$90,000 have been made to ten member hospitals in greater Kansas City and institutions elsewhere.

The Medical Business Bureau, Inc., credit and collection service unit of the Jackson County Medical Society, now in its third year, has recovered in excess of \$20,000 for members of the profession on delinquent medical accounts. Through this agency, many Kansas Citians have gained new respect for their medical credit.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society met at the Colonial Tavern, Cape Girardeau, September 11, at 8 p. m.

Dr. J. H. Cochran announced that the object of the meeting was to complete plans for the meeting of the Southeast Missouri Medical Association.

It was decided to determine the number of persons who would attend the banquet and then make definite arrangements for the place of holding it.

On motion of Dr. C. T. Herbert the Society decided to be host at a tea on Tuesday of the meeting between 4:30 and the time of the banquet.

A letter from Dr. Alphonse McMahon, St. Louis, asking endorsement of the plan of the St. Louis Medical Society to invite the American Medical Association to meet in St. Louis in 1943 was read. Whole-hearted support was voted by the Society.

The members were guests of Dr. E. R. Schoen, Jackson, for refreshments following the meeting.

C. A. W. ZIMMERMANN, M.D., Secretary.

Perry County Medical Society

The Perry County Medical Society met at the office of Dr. B. T. Koon, Perryville, on September 22 at 8 p. m., the president, Dr. Koon, presiding.

A letter from the St. Louis Medical Society in regard to obtaining the meeting of the American Medical Association in St. Louis in 1943 was read. It was voted that the Society should give its active support and cooperation.

The Society voted to investigate through the prosecuting attorneys office an osteopath in Perryville who has circulated cards leaving the impression that he is a regular physician and surgeon.

A resolution was passed, to be presented to the Perryville Public School Board, in regard to obtaining proper medical service at the high school athletic department and the examination of the students of the public school system.

Members present were Drs. B. T. Koon, O. A. Carron and J. J. Bredall, Perryville.

The meeting adjourned at 9 p. m.

J. J. BREDALL, M.D., Secretary.

Six County Medical Society

The Six County Medical Society met at the Country Club, Kennett, September 22, for dinner and a scientific program.

Dr. Andy Hall, St. Louis, spoke on "Transurethral Resection of the Obstructing Prostate."

Dr. Sim F. Beam, St. Louis, spoke on "Acute Respiratory Infections."

The following physicians were present: Drs. Andy Hall and Sim F. Beam, St. Louis; Paul Baldwin, U. A. V. Presnell, G. R. Presnell, J. H. Keim, J. C. Cofer, James R. Amos, W. H. Aufranc and E. L. Spence, Kennett; J. B. Luten, Caruthersville; G. A. Sample, Chaffee; F. L. Kneibert and J. Lee Harwell, Poplar Bluff; S. E. Mitchell and J. D. VanCleve, Malden; Claude McRaven, Marston; E. G. Cope, Hornersville; Edward Ford, Parma; J. J. Killion, Portageville; Bernard L. Lenara and W. F. Pitt, Hayti.

L. E. COOPER, M.D., Secretary.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at the St. Francois County Courthouse, Farmington, September 29, at 7:30 p. m. Dr. N. W. Hawkins, Bonne Terre, president, called the meeting to order.

Dr. M. F. Arbuckle, St. Louis, gave an excellent discussion on "Diseases of the Pulmonary Tract and Esophagus: Diagnosis and Treatment," illustrated by slides. Many questions were asked and a general discussion followed.

Dr. C. P. Dyer, St. Louis, discussed "Conservation of Eyesight" and presented a motion picture film.

Dr. Ralph Kuhlman's application for membership was accepted.

The question of publishing articles in local newspapers to acquaint the public with the progress of medicine was discussed and pamphlets from the American Medical Association were examined. No definite action was taken.

G. T. GRAVES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

18th Annual Meeting, New York

President, Mrs. Rollo K. Packard, Chicago.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

16th Annual Meeting, Joplin

President, Mrs. Paul F. Cole, Springfield.

President-Elect, Mrs. Stanley P. Howard, Jefferson City.

Adviser, Dr. Herbert L. Mantz, Kansas City.

The year 1939-40 promises to be a successful one for the Missouri Auxiliary if the enthusiasm with which it started is any criterion. Fifty-seven women attended the fall board meeting in Columbia in September. The year's work will stress "Personal and Public Education." Mrs. Paul F. Cole, Springfield, state president, has visited auxiliaries in St. Louis, Cass County, and the 26th District.

Mrs. A. M. Estes, *Hygeia* chairman, has announced a goal of a thousand subscriptions and her slogan is "Each Auxiliary member a *Hygeia* subscriber and a copy in every class room." Some of the auxiliaries have already announced their intention of entering the national *Hygeia* contest.

Mrs. Stanley P. Howard, state essay contest chairman, has chosen for the subject of the contest, "How Medical Sciences Have Lengthened the Life Span." With the cooperation of Mr. E. H. Bartelsmeyer, nearly

a thousand letters have been sent to accredited high schools announcing this health essay contest.

It is hoped that at least one public relations meeting will be held by each Auxiliary. Greene County has announced that Dr. W. W. Bauer will be their speaker in December.

The *Quarterly Bulletin* issued in October contains a directory of officers, chairmen and county presidents. A new feature is that the *Bulletin* in the future will contain in each issue an article from some other publication that will be helpful to the Auxiliary. The one used this month was taken from the *St. Louis Weekly Bulletin* and is a reprint of Dr. Townsend's address on "State Medicine." Mrs. Herbert L. Mantz is serving as circulation manager.

Auxiliary members will be glad to learn that Mrs. Willard Bartlett, St. Louis, organizer of the Missouri Auxiliary, a past state president and twice convention chairman for the National Auxiliary when it met in St. Louis, has returned safely from Europe. Mrs. Bartlett had engaged passage on the *Athenia* but changed her plans and returned home a week earlier.

Mrs. David S. Long, Harrisonville, past president of the Missouri Auxiliary, has resigned as editor of the *Missouri Club Woman*, an office which she filled successfully for six years.

Women who are eligible to membership in the Auxiliary and who live where there is no auxiliary, may become members-at-large.

BOOK REVIEWS

PRACTICAL DERMATOLOGY AND SYPHILIS. By Harry M. Robinson, M.D., Professor of Dermatology, and Director of the Syphilis Clinic, University of Maryland, School of Medicine; Instructor in Medicine, Syphilis Division, Johns Hopkins Medical School. Philadelphia: P. Blakiston's Son & So., Inc. 1939. Price \$4.50.

This book is intended as an aid to the beginner in the study of dermatology by helping him acquire a knowledge of the fundamentals of skin diseases and by showing how one may learn to recognize and diagnose the commoner diseases of this field. Clinical diagnosis is presented from two standpoints: the morphology of primary and secondary lesions; their distribution.

Discussions in the book include syphilis, macular conditions, papular conditions, vesicular conditions, conditions with scars and atrophy, ulcer conditions and ex-coriation dermatoses.

Excerpts from the book follow:

"Anatomy of the Skin. The skin is divided into three layers: 1. The epidermis or cuticle. 2. The dermis (true skin) or corium (cutis). 3. The hypoderm or subcutaneous tissue. Of the epidermis, only two layers receive emphasis here: The basal layer . . . is the germinal or mother layer . . .

"Etiology. The cause of a condition is the most important fact about it, in that it usually directs rational procedures of therapy toward a cure . . .

"Eczema (Eczematous Dermatitis). Eczema or atopic or endogenous dermatitis, a clinical entity, may be caused by sensitization to an ingested substance, focal infection, or it may be due to neurogenic (i. e., emotional or psychiatric) factors . . .

"Psoriasis. Sites of Predilection.—Elbows, knees, extensor surface of the extremities, scalp, trunk, etc. Rarely on the face, palms or soles. Objective symptoms.—Well defined, flat, dry, pinkish papules, varying in diameter. . . . Etiology.—Unknown. Those affected are

usually otherwise healthy. Some theories: metabolic disturbances (fat, nitrogen); parasitic; heredity. Therapy.—Locally, 1 per cent to 5 per cent chrysarobin, in ointment, in traumaticin or in chloroform, once a day. (Caution: This frequently causes a severe dermatitis.) . . ."

Under macular conditions are described chloasma, comedones, eczema or atopic dermatitis, superficial epitheliomatosis, erysipelas, erythema, erythrasma, fixed eruptions, ichthyosis, lupus erythematosus, nevus vasculosus, pellagra, rubella, rubeola, scleroderma, macular syphilid, trichophytosis corporis and other diseases, arranged in accordance with the impartial alphabet.

Like the textual matter the illustrations have been compressed. The screen of 150 to the inch is composed of dots almost as large as some of the lesions they represent. No cut exceeds 8 by 9 cm. and many are 3 by 4 cm. The collection from which they have been selected is probably very fine.

The book should show nondermatologic members of a faculty of a medical school that dermatology cannot be taught in thirty-five minutes so as to leave time for important subjects like the technic of gastric resection, which a medical student really ought to know. Beyond a limit, simplification is accomplished by omission. It is possible to say so little of a subject that, in effect, one has said nothing.

R. L. S., Jr.

PATHOLOGICAL TECHNIQUE. A Practical Manual for Workers in Pathological Histology Including Directions for the Performance of Autopsies and for Microphotography. By Frank Burr Mallory, A.M., M.D., S.D., Consulting Pathologist to the Boston City Hospital, Boston, Mass. Illustrated. Philadelphia and London: W. B. Saunders Company. 1938. Price \$4.00.

The name and fame of this long time pathologist, who has for years honored his profession in Boston and in all America, needs no further commendation. All who have for so long a time hoped for just such a book from so distinguished a technician and teacher had almost given up hope of seeing his experience crystallized in print.

This volume of 397 pages is one of the precious few "must books" for the table of every laboratory and morgue room in this country. Its advice as to what to do and how and when must not be gone against without most mature consideration. Every technic advised bears the earmarks of infinite pains in determining the best in the light of the greatest experience of a meticulous master.

Dr. Mallory is fully entitled to the everlasting gratitude of all entering the field of pathological inquiry. This book will save all who consult its pages an infinity of blunders that can never be remedied. The experiences of the future will fully explain why this reviewer takes such an unequivocal position.

F. J. H.

MANUAL OF FRACTURES AND DISLOCATIONS. By Barbara Bartlett Stimson, A.B., M.D., Med. Sc.D., F.A.C.S., Associate in Surgery in the College of Physicians and Surgeons, Columbia University, New York City, etc. Illustrated with ninety-five engravings. Philadelphia: Lea & Febiger. 1939. Price \$2.75.

The author's work is sponsored by Drs. William Darach and Clay R. Murray whose research and clinical work on fractures is widely known.

The manual is intended primarily for medical students and general practitioners. Those of larger experience may look it over profitably for percentage of occurrence of fractures and time necessary for splinting. In most instances the time of complete immobilization recommended is shorter than that which is commonly considered necessary. Further, it furnishes

briefly a view of the accepted procedures of the Columbia University fracture service.

Well drawn diagrammatic illustrations cover all points of anatomy and pathology and some of those of treatment. There are no reproductions of roentgenograms which are expensive and often unsatisfactory.

The lines of treatment suggested are essentially sound. It is not to be expected that a reviewer with large experience with fractures would always be in agreement. We all have certain favorite methods.

Chapter IX, "Injuries at the Elbow Joint," is perhaps the best in the book. The subject is covered completely and the various conditions which require operation are clearly set forth.

It may be noted with interest that the acutely flexed position is never recommended except in some internal epicondyle fractures and that posterior right angle splints are almost invariably suggested instead of anterior or internal angular splints. R. M. S.

THE RELATION BETWEEN INJURY AND DISEASE. By Jewett V. Reed, B.S., M.D., F.A.C.S., Assistant Professor of Surgery, Indiana University, and Charles P. Emerson, A.B., M.D., D.Sc., Past Professor of Medicine and Dean Research Professor of Medicine, Indiana University. Collaborating, E. B. Memford, B.S., M.D., F.A.C.S., Past Assistant Professor of Orthopedic Surgery, Indiana University. Indianapolis: The Bobbs-Merrill Company, Publishers. 1939.

This excellent book will afford the physician much opportunity for profitable browsing. Its sprightly style will maintain his interest. The authors have accomplished their purpose of writing a treatise on the relation between trauma and disease but in so doing they have run the whole gamut of etiology, physiology and diagnosis in so far as it bears upon the problems of medicine. In those medicolegal cases in which the effect of the injury upon the disability is not entirely clear didactic answers and satisfying reasons for them are provided. An example of the authors' direct approach is afforded by the following abstract: "The acute infection of a previously normal appendix never is the direct result of trauma. The latter can excite an inflammatory reaction only if, as the result of a previous subacute process, this organ had developed kinks, adhesions or fecaliths. . . . severe purulent and gangrenous appendicitis may follow contusions to the lower right abdomen. . . . cases of subacute appendicitis may be made more acute and cases of the mild acute or chronic types may be transformed to those of serious suppurative and gangrenous appendicitis by violent blows and crushing injuries to the lower right abdomen."

Even the physician who has no contact with medicolegal cases will find occasion for frequent reference to this volume. B. Y. G.

THE CANNED FOOD REFERENCE MANUAL. New York, 230 Park Avenue: American Can Company. 1939.

"Canned Food Reference Manual," recently compiled by the Nutrition Laboratory, Research Department of the American Can Company, was prompted by the realization that not only must reliable information on canned foods be made available to laymen but also that more technical information on this class of foods should be provided those professions which deal intimately with canned foods.

The products of the American canning industry have become so important to our modern civilization that it is indeed difficult to visualize how present-day life could proceed without commercially canned foods. For many years canning was a secret art and foods in tin containers were regarded as unusual or even mysterious. It is a well-known fact that people seldom

trust to the fullest extent any class of foods whose method of manufacture is not clear to them.

Several decades ago the necessity of a better popular understanding of the nutritive values and wholesomeness of commercially canned foods was realized. Since that time much educational publicity on canned foods has been issued for the benefit of the layman consumer.

Less than five years ago it was found essential to provide more technical information for the professions. Consequently, in 1935, the American Can Company inaugurated its present practice of issuing each month in the journals serving the medical, dental, nursing, dietetic and home economics professions, a factual release covering in technical vein some phase of canned food knowledge. The great demand for some type of publication which would bring all these releases together within one binding, was met first by publication of "Facts About Commercially Canned Foods" in 1936, and later by issuance of "Nutritive Aspects of Canned Foods" in 1937. The present text has been prepared to amplify and extend rather than to replace the previous publications.

THE ENDOCRINE GLANDS. By Max A. Goldzieher, M.D., Endocrinologist, Gouverneur Hospital and Brooklyn Women's Hospital, New York; Former Professor of Pathology, Royal Hungarian University, Budapest. Illustrated with two hundred and seventy-one figures. New York, London: D. Appleton-Century Company, Incorporated. 1939. Price \$10.00.

This is an encyclopedic work of about 900 pages divided into 124 chapters which attempts to combine practical clinical endocrinology with a reference source for research workers and students who might desire additional detailed information. All aspects of endocrinology are discussed. Many subjects however are given but brief and sketchy notice. The pituitary gland, thyroid, adrenals and gonads receive proportionately more attention than do the other glands of internal secretion.

The clinical aspects of endocrinology are presented and discussed in a thorough and learned manner, but for the internist and general practitioner this book does not appear to be sufficiently practical. Physiology and pathology are stressed and an excellent detailed classification of the endocrinopathies is presented. Treatment is emphasized and is based on personal experience. The discussions include much controversial matter and are colored by the author's own views and opinions.

For research students and laboratory workers all the theoretic and laboratory phases of the subject are presented, but the discussions would seem to be grossly inadequate for their purpose. However, each chapter, and in fact each brief section, is followed by an extensive bibliography for further reference.

On the whole, this is a well conceived book with worthy and original ideas, which falls somewhat short of its aims. L. C.

MODERN CLINICAL PSYCHIATRY. By Arthur P. Noyes, M.D., Superintendent, Norristown State Hospital, Norristown, Pennsylvania. Second edition, rewritten and enlarged. Philadelphia and London: W. B. Saunders Company. 1939. Price \$5.00.

There is a prevailing opinion among the medical departments of universities in the United States that the general practitioner can no longer ignore the more technical aspects of psychiatry. Accepting this as a fact, Dr. Noyes has written a concise, swiftly moving book setting forth the diagnoses, a short discussion of the mechanisms and the conservative treatment of the organic and functional psychoses. Not the least important section of each chapter is the differential diagnosis, and the author duly offers the practical fact that

in many cases the diagnoses (as between mania and catatonic excitement of schizophrenia) are extremely difficult and a matter of observation and family history rather than clever differentiation. Clever diagnosis is not stressed.

Rather than precipitate the student and practitioner into the delicate erotic mazes of psychoanalysis, the author combines biologic and Freudian deterministic variants into one species and makes an interesting analogy between the nervous systems of an ascending order of animals from amoeba to man and psychic levels. The amoeba and paramecium are trophic animals with a fixed type of behavior designated as trial and error; the earthworm is a reflex animal with the necessary neurons, instinct, a stereotyped method of solving complex environmental situations found in the majority of animals, and finally, with the development of the cortex in mammals, intelligence is derived. It is in the instincts that most psychiatrists find the well-spring of the energy which is manifested in wishing, attitudes, willing, impulse and activities directed toward a goal. Since the instincts are inherited behavior patterns, they function without effect until they are impeded and then emotion finds its way into consciousness with concomitant rise of blood sugar and outpouring of adrenalin into the circulation. The James-Lange theory of emotion thus is made to fit nicely into the psychiatric conception of a conflict as a constellation-idea plus an emotion which has been repressed from consciousness and is acting as an insidious catalyst on more acceptable behavior activities of the individual with the resulting slight disorganization of reality adjustment.

For the student, nothing of fundamental importance is omitted. The book is recommended as a complete summary of psychiatry. J. H.

CLINICAL DIAGNOSIS BY LABORATORY METHODS. A Working Manual of Clinical Pathology. By James Campbell Todd, Ph.B., M.D., Late Professor of Clinical Pathology, University of Colorado, School of Medicine, and Arthur Hawley Sanford, A.M., M.D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation); Head of Division on Clinical Laboratories, Mayo Clinic. Ninth edition, thoroughly revised with 368 illustrations, twenty-nine in colors. Philadelphia and London: W. B. Saunders Company. 1939.

This book is a revision of the 1935 edition. The first two chapters are virtually the same as in the previous edition. The authors have deemed it advisable to place the description of colorimetric analyses in the chapter on clinical chemistry instead of in the chapter on urinalysis as in the previous edition, otherwise there has been little change in this chapter.

The chapter on the study of stained blood has undergone little revision except for the addition of an interesting section on hematopoiesis. This section is based on the work of Downey, although the diagram can be used to explain the polyphyletic viewpoint of hematopoiesis. This chapter also includes the Ottenberg classification of the anemias instead of that based on the Vogel classification as in the 1935 edition.

I am glad to see the Westergren sedimentation method presented in a book of this type. This method has long been in use in this country but has often been omitted from many textbooks.

I regret that the authors did not give a more elaborate description of modern blood grouping methods with subgrouping and titration of grouping sera given in detail. Since this book primarily is intended to be used in the laboratory, an important subject like this needs more consideration than the space allotted to it in this textbook assumes.

To the chapter on clinical chemistry have been added

the complete technic of Bodansky for the determination of phosphate and phosphatase and the complete technic of the sulfate method of Power and Wakefield. Tests for cevitic acid and sulfanilamide in blood and urine are also included.

Probably the most completely revised chapter is that on serodiagnostic tests for syphilis. This chapter gives the latest modifications of the most important serodiagnostic tests: the Kline, Kahn, Hinton, Eagle and Kolmer.

While this text of Todd and Sanford is fairly complete as a textbook of clinical pathology, the laboratory worker will need textbooks on bacteriology, parasitology and hematology to completely supplement his reading and study. This is not intended to detract in any way from the merit of this excellent publication, but simply to call attention to the fact that it is not a complete treatise on the broad subject of clinical pathology.

R. B. H. G.

ESSENTIALS OF FEVERS. By Gerald E. Breen, M.D., Ch.B. (N.U.I. Dub.), D.P.H., D.O.M.S. (R.C.P. Lond., R.C.S. Eng.); Senior Assistant Medical Officer, The Brook Hospital, London, etc. A William Wood Book. Baltimore: The Williams and Wilkins Company. 1939. Price \$3.00.

This book is, as the author asserts in his preface, a little book which attempts to compress the essentials of acute infectious diseases into a volume of pocket size. This is manifestly a difficult task since volumes much larger have been written on the use of one drug, sulfanilamide, in infectious fevers. The author uses considerable discretion in what he admits to his book and is of necessity brief in all matters. This at times detracts from the value of the book. The passages on prophylaxis in most instances are too short to be useful.

The space devoted to immunity and general features of infection is worth while but brief.

Scattered throughout the book are British phrases and attitudes which will seem strange to American readers but on the whole English and American ideas seem to coincide. The author lays little stress on the use of vaccine for prophylaxis in whooping cough or placental extracts in treatment of measles and emphasizes the use of convalescent serum in numerous conditions.

On the whole the book seems adequate as a compendium on communicable disease but does not seem superior to similar recent attempts of other authors.

R. O. M.

MENSTRUAL DISORDERS, Pathology, Diagnosis and Treatment. By C. Frederic Fluhmann, B.A., M.D., C.M., Associate Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco, California, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1939.

This scholarly monograph by Fluhmann is a comprehensive summary of the literature relating to menstruation.

Beginning with a historical account of theories and investigations of this biological phenomenon, the author includes in substance nearly everything that has been written concerning menstruation.

One is particularly impressed with the success of the research of the last twenty years as related to the physiology of the endocrine glands and menstruation. Some results have been achieved in therapeutics but these have been less brilliant. Dysmenorrhea is still a problem to an undetermined but reasonably high percentage of women.

Graphs and photomicrographs and references to the literature increase the size of this book to three hundred odd pages. It would doubtless be more popular in a more concise edition.

B. S. P.

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MODERN TRENDS IN PNEUMONIA THERAPY

RAYMOND O. MUETHER, M.D.

ST. LOUIS

The introduction of type specific antiserum for the treatment of lobar pneumonia gave great impetus to the study of this disease and ushered in an era of intensive investigation which has added much to our knowledge. Such intensive study led to the formulation of many new therapeutic ideas since it was soon found that reliable antiserum could not be made for all types of pneumococcus. Among these were various types of chemotherapy, chiefly, the quinine derivative, as well as diathermy, roentgen ray and artificial pneumothorax. These measures have not been entirely successful and so the research has continued. Rarely does a year go by without the introduction of some new measure or technic for the treatment of pneumonia.

Certain procedures have become standard symptomatic measures in the treatment of pneumonia and these measures should not be neglected no matter what therapeutic approach is made to the disease. Oxygen therapy is one such measure and its proper use should always be borne in mind. The newer methods of application make oxygen therapy available to everyone and there seems little reason to ignore its beneficial symptomatic effects.

The purpose of this report is not the general discussion of pneumonia but rather the discussion of recently introduced specific therapeutic measures, namely, rabbit serum and the compounds of sulfanilamide and our experiences with them. These agents are new in this country, having gone through only one pneumonia season, and so it is very difficult if not impossible to evaluate them satisfactorily. However, reports such as this should serve to aid in the final analysis and are, therefore, of some value.

The cases in the series to be reported were derived from a variety of sources and include those cases which entered the St. Louis University Group

of Hospitals and the Homer Phillips Hospital for Negroes.

All cases had roentgen ray evidence of pneumonia as well as clinical evidence and there was no selection of cases except that those cases which died within twenty-four hours of admission were not included. Sputum typing was done whenever possible and daily white and red cell counts were made along with hemoglobin determinations and differential counts. One or more blood cultures were made on each patient.

No attempt was made to influence the type of therapy to be used on patients under the care of private physicians as, in this manner, selection of cases was further avoided.

The procedure outlined represents average conditions and we believe they should yield results comparable with those that will be obtained when the measures under discussion are used under the varying conditions of general practice.

There are 152 cases in the series and of this number twenty-two were treated with horse serum, forty-eight with rabbit serum, thirty-one with sulfapyridine, eight with neoprontosil and forty-three received only symptomatic treatment. Thirteen of the cases had positive blood cultures and of these eleven died.

The use of horse serum is at least twenty-five years old and its effectiveness is well known. However, not all types of pneumococcus produce satisfactory horse serum and the therapeutic use of the serum has been limited to types I, II, IV, V, VII and VIII. The results obtained in this series are given in table 1 and are essentially the same as those

Table 1. *Treated With Horse Serum*

Type	Number	Died	Per Cent
I	8	1	12.5
II	3	1	33.3
IV	1		
V	3		
VII	1		
VIII	3	2	66.6
Total	22	4	18.1

obtained by other investigators, the mortality for the entire series being only 18.1 per cent.

Rabbit serum was first successfully used and reported by Bullowa¹ but it received little attention

Read at the 82nd Annual Session of the Missouri State Medical Association, Excelsior Springs, April 10-12, 1939.

From the Department of Medicine, St. Louis University School of Medicine, St. Louis.

as a therapeutic agent until the report of Horsfall, Goodner and McLeod^{2,3,4} recalled it to the attention of the profession. Rabbit serum has certain definite advantages over horse serum in the treatment of pneumonia. Rabbit serum can be prepared against the higher types of pneumococcus. It apparently causes fewer reactions and it is rare to find an individual who is sensitive to it. The commercial availability of the rabbit serum has caused many men to study its effects in clinical pneumonia and it is the consensus of opinion that the serum is effective if, as is the case with horse serum, it is given early in the course of the disease. The serum is less than one half as effective after the third day of the disease as when given within the first seventy-two hours. The earlier the serum is given the better will be the results and when given within the first twelve hours the mortality rate is low.

The results obtained with rabbit serum in our series are given in table 2 and show the effectiveness of the serum in the higher types of pneumo-

Table 2. Treated With Rabbit Serum

Type	Number	Died	Per Cent
I	13	1	7.6
II	3		
III	10	3	30.0
IV	7	2	28.5
V	3		
VII	4		
VIII	4	2	50.0
XIII	1	1	100.0
XIV	2		
XVII	1	1	100.0
XVIII	1	1	100.0
XXIII	1		
Total	48	11	22.9

nia. There were forty-eight cases in the series with eleven deaths giving a mortality rate of 22.9 per cent. In none of our cases was any serious reaction noted.

The use of chemotherapy in the treatment of pneumonia is not new but heretofore it has not been particularly successful or has resulted in such serious side effects that its use was abandoned. With the advent of sulfanilamide therapy, however, numerous investigators reported the successful use of the drug in the experimentally produced pneumococcal infection in various laboratory animals.^{5,6,7,8,9,10} Sulfanilamide did not seem to give the same good results in humans, however, and as the newer drugs were synthesized they were tried in the pneumococcal infections. Among these was neoprontosil and our experience with the drug is recorded in the small series in table 3. The most encouraging part of our experience was its apparent effectiveness in the four cases of type III pneumonia and the absence of side effects.

In England a new derivative of sulfanilamide was prepared and was found by Whitby^{11,12} to be effective in experimental pneumonia and the drug was subsequently shown by Evans and Gaisford^{13,14} to be effective clinically in pneumonia. This drug which is 2 sulfanilyl aminopyrine is known as sulfapyridine, Dagenan or M & B 693. The average

Table 3. Chemotherapy

Type	Number	Sulfapyridine Died	Per Cent
II	1		
III	4	1	25.0
IV	1	1	100.0
V	2		
VIII	1		
XI	1		
XII	1		
XIII	1		
XVIII	1		
XXIII	3	1	33.3
XXV	1	1	100.0
No Type	14	2	13.5
Total	31	6	19.3
Neoprontosil			
III	4		
V	1	1	100.0
VI	1		
XIII	1	1	100.0
XVIII	1		
Total	8	2	25.0

dose for adults is 8 gm. per day usually divided into six doses and given every four hours day and night. The dose for children is proportionately less. The dose of the drug should be checked by daily blood determinations of the concentration of sulfanilamide. This is best accomplished by the method of Marshall.¹⁵ The titer of the blood should be maintained at about 6 to 8 mg. per cent. Higher concentrations are not desirable and if they exist the dose should be reduced. If the titer is below the figures given the dose should be increased.

Daily blood counts are also essential since cases of agranulocytosis and hemolytic jaundice may result from the administration of the drug. Various side reactions may be expected with any of the sulfanilamide compounds^{16,17,18} and sulfapyridine has not proved an exception. Nausea, vomiting, headaches and dizziness are frequently complained of but do not as a rule force the physician to discontinue the drug.

The results of our experiences with sulfapyridine are given in table 3. Thirty-one cases were treated with this drug and there were six deaths giving a mortality rate of 19.3 per cent.

Fourteen of the cases could not be typed, chiefly because the therapy was started before the sputum for typing was obtained. It is thought that when sulfapyridine is administered the capsular substance is so altered as to make typing impossi-

Table 4. Symptomatic

Type	Number	Died	Per Cent
II	3	1	33.3
III	11	8	72.7
IV	2	2	100.0
V	2	1	50.0
VI	3	1	33.3
VII	1		
VIII	4	1	25.0
IX	1		
XI	2		
XIV	2		
XV	1		
XVII	3	2	66.6
XIX	1		
XXI	2	1	50.0
XXIII	3		
XXV	2		
Total	43	17	39.5

ble. This then serves to emphasize the necessity of typing the patients before therapy is started as it is sometimes desirable to reinforce the drug therapy with serum and this cannot be done if the patient has not been previously typed. Table 4 shows the results which were obtained when only symptomatic treatment was used and the mortality rate is relatively high, being 39.5 per cent. It must be recalled, however, that in this group are many patients who entered the hospital late in the disease and who died within thirty-six to forty-eight hours. Several of these patients received one or two doses of the drugs under discussion but the amount was so inadequate that it was thought best to remove them from the treated group and place them in the untreated group.

Table 5. *Bacteremia*

Type	Number	Died	Per Cent
I	1	1	100.0
II	1		
III	2	2	100.0
IV	1	1	100.0
V	1	1	100.0
VIII	2	2	100.0
XIII	1	1	100.0
XIV	1	1	100.0
XV	1		
XVI	1	1	100.0
XXI	1	1	100.0
XXV	1	1	100.0
Total	13	11	84.6

Table 5 is of considerable interest as it emphasizes the importance of bacteremia in the prognosis of pneumonia. Most of the cases of bacteremia in our series occurred in patients who had been neglected, that is, patients who had had pneumonia for four or more days before consulting a physician. Bacteremia when seen earlier in the disease is not associated with so high a mortality if adequately treated, although patients with bacteremia need much larger doses of serum or drug than do those cases which do not have bacteremia.

Table 6. *Results of Therapy*

	Number	Died	Per Cent
Rabbit Serum	48	11	22.9
Horse Serum	22	4	18.1
Sulfapyridine	31	6	19.3
Neoprontosil	8	2	25.0
Symptomatic	45	17	39.5

Table 6 is a condensation of the therapeutic results obtained by the various procedures discussed. It will be noted that the therapeutic results obtained show little difference and the differences which do exist depend more upon the inadequacy of the series studied both in number and selection than upon inherent differences in the methods used so that it is entirely possible that identical cases might respond equally well to any of the therapeutic measures. Horse serum seems to be of great value in those types for which it is available but it is limited in this regard and if rabbit serum continues to produce satisfactory responses under clin-

ical conditions it is possible that it will eventually replace horse serum entirely.

The combined use of serum and sulfapyridine may eventually prove to be the method of choice in the treatment of pneumonia. At the present time it would seem desirable to combine these two forms of therapy whenever the condition seems to be of extraordinary severity as, for example, when bacteremia exists or when the patient is first seen late in the disease. The senile patient might well have the benefit of combined therapy as well as the patient who is pregnant or one who is an alcoholic addict. There is no evidence that the combined treatment does harm and if it were not for the increased cost combined treatment undoubtedly would be the method of choice. While our experience with combined therapy has not been great, the cases which we have seen have responded well. One case in particular seems worthy of mention. The patient was a middle-aged woman who developed an acute otitis media followed almost at once by acute mastoiditis and facial paralysis. A mastoidectomy was done but the patient developed a meningitis due to pneumococcus type V. She was given 8 gms. of sulfapyridine and 100,000 units of type V horse serum the first day and on the following day 60,000 units of serum and 8 gms. more of the sulfapyridine. The sulfapyridine was continued in daily doses of 8 mgs. but no more serum was given. The patient became afebrile in three days and has continued to do well since that time.

Pneumonia has long been ranked as one of the leading causes of death in this country. If the present results of the newer treatments continue it may soon be removed from this category. We are not, however, justified in assuming a too optimistic outlook at this time for, regardless of the efficacy of any treatment, it can do no good unless applied and in pneumonia it must be applied promptly and correctly. It must also be remembered that both serum and sulfanilamide compounds are capable of doing considerable harm to the patient unless suitable precautions are taken. Anaphylaxis and serum sickness are complications or side effects of serum therapy which must be kept in mind constantly while cyanosis agranulocytosis, hemorrhagic anemias and other conditions may make the use of sulfanilamide compounds a menace rather than a help.

We are not justified in ignoring typing, blood cultures and other laboratory procedures in the treatment of pneumonia. On the contrary, these procedures now become more important than ever before since we are in a position to do more with our knowledge.

CONCLUSIONS

The use of type specific rabbit serum and the sulfanilamide derivatives, particularly sulfapyridine, seems to be of value in almost all types of pneumonia. Neoprontosil, however, seems to be

effective in certain types of pneumonia and should be given further trial.

The use of these therapeutic procedures is attended with some danger and they should not be used hastily or without proper care.

The early use of the therapeutic agent, whether serum or drug, markedly enhances its effectiveness. It is conservatively estimated that each day's delay diminishes the effectiveness of the treatment by at least 10 per cent.

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SURGICAL ASPECTS OF PEPTIC ULCER

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Previous to the last five or ten years the indications for surgical intervention in peptic ulcer were rather poorly defined. Recently there has been a gradually increasing agreement that surgery should be utilized in peptic ulcer only in its complications. Years ago the results following surgical therapy, which consisted primarily of gastro-enterostomy, were extremely unsatisfactory. These poor results were due largely to gastro-enterostomies being performed too often in cases of acute ulcers without obstruction and in patients who had not been treated adequately by diet and alkalies. In a study of a series of patients treated surgically early in the disease MacFarlane¹ noted that surgical therapy failed in a percentage as high as 46 per cent if it was instituted within two years of the first symptoms. It has been noted likewise that the poor results which are frequently obtained in gastro-jejunal ulcer are more frequent if the acid content of the stomach is high. R. Graham² has called attention to poor results following surgical therapy in patients who have aggravating pain in the epi-

gastrium but who have no roentgen ray or other findings to indicate the presence of ulcer. In this group laparotomy is usually performed on the basis of pain alone. He has designated this type of ulcer as duodenal ulcer occulta and warns against a conservative type of operative therapy although, as will be mentioned later, cures may be expected with radical therapy (resection).

Surgical treatment for peptic ulcer is still undergoing radical changes. A trend in many clinics is to resort to more radical therapy in an effort to prevent failures resulting from gastrojejunal ulcer or from other causes. Walters,³ however, has aptly cautioned against the blind acceptance of radical surgery (particularly gastric resection) and emphasizes that it should be done only when indications are definite; he likewise remarks that gastro-enterostomy still remains the most useful operation in surgery of duodenal ulcer.

During recent years it has been found that patients with duodenal ulcer (excepting the perforated group) frequently have a vitamin C deficiency. This should be corrected, preferably before operation; a smoother postoperative course including an earlier function of the stoma will be experienced. Hemorrhage may likewise be associated with a low vitamin C level.

INDICATIONS FOR SURGICAL THERAPY

The conditions for which operation is indicated are primarily (1) perforation; (2) stenosis; (3) hemorrhage; (4) failure of response to medical therapy, and (5) gastric ulcer. As will be mentioned later, operation may be indicated, however, in uncomplicated cases of gastric ulcer.

Perforation.—This complication is perhaps associated with less difficulty in therapy. The manifestations of perforation of a duodenal or gastric ulcer are dramatic and in brief consist of the sudden development of severe pain in the epigastrium which usually produces collapse of such a severe nature that the patient actually will fall to the ground. There may or may not be symptoms suggesting the presence of an ulcer previously. Since ulcers and their complications occur more commonly in men than in women, this simple feature may be helpful in aiding in diagnosis. Examination of the patient after perforation usually reveals marked tenderness with muscle spasm in the epigastrium. This muscle spasm and tenderness increase in extent as hours go by, depending largely upon whether or not the perforated area becomes sealed with omentum. An important point in the diagnosis is the pulse rate insofar as the collapse occurring with perforated ulcer is practically never associated with a significant tachycardia until hours later when pyogenic peritonitis develops. The blood pressure is likewise usually within normal limits. The aspect of shock, which may be encountered in such lesions as intra-intestinal hemorrhage, is therefore absent.

At first the peritonitis resulting from perforation

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is chemical. The inflammation of the peritoneum resulting from this insult produces a fertile field for the development of a bacterial peritonitis. Vomiting is variable but usually present.

Obviously the perforation should be closed. If the patient is seen within an hour or two following perforation, he will need little preoperative preparation. However, if more than from twelve to fifteen hours have elapsed since perforation and considerable vomiting has occurred, preoperative fluids including physiological saline must be given. In patients who have suffered perforation a day or two previous to treatment, it may be advisable to delay operative treatment as long as six or eight hours until the electrolytic and fluid balance is re-established.

At operation the only procedure which need be considered is closure of the perforation. The conception that gastro-enterostomy was indicated in patients seen within six or eight hours of the perforation has been abandoned. Experience has taught us that patients having been treated for perforated ulcer by simple closure recover remarkably well and, with average dietary care, a large percentage of them will have no further difficulty.

Stenosis.—Cicatricial contraction occurs much more commonly in duodenal ulcer than in gastric ulcer. It is in reality a late symptom but fortunately responds well to therapy. Commonly there is an initial history of epigastric distress relieved by food and alkali followed by an interval in which food and alkali do not relieve symptoms and in which vomiting has manifested itself. The presence of vomiting is, therefore, indicative of obstruction. Occasionally medical therapy will relieve symptoms but usually it fails and surgical treatment will have to be instituted. After the diagnosis has been established and operative treatment decided upon, it may be wise to decompress the stomach with a nasal catheter to restore muscular function and eliminate edema. Experience has taught us that in this complication gastro-enterostomy will be one of the most satisfactory methods of treatment. The location and direction of the incision in the stomach probably have little to do with the functioning of the stoma provided the stoma is made in the dependent portion of the stomach and axial rotation is eliminated. My opinion is, however, that to obtain maximum neutralization the stoma should be long. This dictum should be adhered to firmly if the hyperacidity is significant. Frequently, however, the hyperacidity will have diminished to a great extent, thereby making the possibility of development of gastrojejunal ulcer less significant. Whether catgut or silk is used as suture material is probably of little consequence although catgut should probably be used at least on the inside layer. Ordinarily the gastro-enterostomy should be of the posterior type. In rarer instances when the stomach is small and the mesocolon thick, a posterior gastro-enterostomy will be so difficult that an anterior anastomosis will be indicated. This

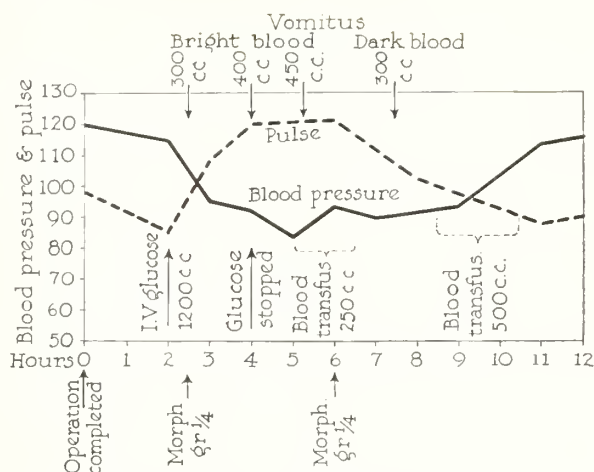


Fig. 1. Blood pressure and pulse chart of a patient with intestinal hemorrhage from a suture line of a gastro-enterostomy performed for duodenal ulcer. Patient vomited blood and showed early signs of shock three hours after operation. The intravenous glucose was stopped and blood given slowly so that the blood pressure was kept between 80 and 90 mm. for several hours, thereby allowing clotting to take place. The dehydration incurred was not corrected until several hours later when bleeding had ceased and it was thought the clot was firmly fixed. Convalescence was uneventful after this period.

necessitates a longer proximal loop. However, this does not justify an entero-enterostomy, particularly in the presence of a high acidity, because of the possible development of a gastrojejunal ulcer.

Hemorrhage.—This is one of the most serious of the complications encountered in peptic ulcer and usually requires more skill and experience in its treatment than any of the other complications. It may occur in gastric as well as duodenal ulcers but is more commonly encountered in duodenal ulcers, largely because of the frequency of duodenal ulcer. For some strange reason, serious hemorrhage from a peptic ulcer is apt to occur in patients having few symptoms of an ulcer. The most common early manifestation of a bleeding ulcer is weakness and a feeling of faintness. The patient rapidly seeks his bed and if he is slow in finding a place to lie down may even collapse. In this instance all the manifestations of shock, including tachycardia, faint pulse, low blood pressure, pallor and cold clammy skin, will be manifested. Naturally the degree of shock will be dependent upon the severity of the hemorrhage. In only about 50 per cent of the cases will vomiting be present. The vomitus will naturally contain blood. From the clinical picture it will be impossible to determine whether the hemorrhage is coming from an ulcer or some lesion such as an esophageal varix. It is important that the patient be examined for the possible presence of cirrhosis and splenomegaly since the treatment of the hemorrhage in ulcer and esophageal varix may be quite different. Fortunately few patients with bleeding peptic ulcer succumb to the hemorrhage. It should be remembered, however, that hemorrhage from peptic ulcer is much more serious in elderly people than in young people. For example, Allen¹ noted in a series studied by him that in

ninety patients less than 50 years of age only four died, whereas in forty-two patients above 50, fourteen died from the hemorrhage.

Until recently there has been no agreement as to the type of therapy for hemorrhage. The observation of Finsterer⁵ that surgical therapy is usually fatal if attempted more than forty-eight hours after the hemorrhage has been invaluable. The experience of many surgeons conforms to this conclusion. Gordon-Taylor⁶ remarks that this rule must not be violated even though the hemoglobin may be elevated as high as 80 per cent by transfusions.

Numerous methods of attack on the bleeding ulcer have been advised and tried. Occasionally ligation of the right gastric and gastroduodenal arteries will control the bleeding. The author has recently had the unfortunate experience of having performed this operation in a patient with a bleeding duodenal ulcer with no relief from the hemorrhage. Surgeons (including Finsterer, Allen, Graham and others) who have had considerable experience with bleeding ulcers are inclined to recommend gastric resection but only within twenty-four or forty-eight hours after the first hemorrhage. Finsterer noted a mortality of 5 per cent in operations performed during the first forty-eight hours, and of 30 per cent in operations performed forty-eight or more hours after hemorrhage. In a series of patients studied by Allen, he made the observation, "that if operation was delayed for a week or more in a patient continuing to bleed either constantly or with repeated episodes every day or two, no patient was saved by surgery regardless of what was done."

As stated previously, however, most patients with hemorrhage from an ulcer can be treated successfully by conservative management. If, however, a second severe hemorrhage occurs within a

day or two following a hemorrhage which is severe enough to produce shock, immediate surgical therapy should be considered because such patients are apt to bleed again. It is perhaps advisable to give fluids cautiously in patients who are bleeding from an ulcer. Most authorities favor allowing the blood pressure to drop and keeping it low at least for several hours hoping that a clot will form. If the drop in blood pressure continues, blood should be administered slowly to counteract it. It should not be given in quantities sufficient to raise the pressure abruptly. If blood is not immediately available, 5 or 10 per cent glucose may be substituted.

A few years ago Meulengracht⁷ advised against having the patient abstain from food during hemorrhages, particularly in hemorrhages which were not producing shock. In experimenting with the results of feeding in such patients he came to the conclusion that the neutralization of digestive substances and the decrease in gastric peristalsis incident to feeding were beneficial. R. Graham,² Herlihy⁸ and others, therefore, advise the institution of regular feedings and included proteins in the form of ground meat in the diet.

Failure of Response to Medical Therapy.—As mentioned previously, the patient with duodenal ulcer should be treated diligently by diet and alkalies before any operation is considered. The patient must abstain completely from such indiscretions as smoking and drinking before medical therapy can be considered a failure. If medical therapy has not relieved the patient of his distress, surgical treatment may then be considered. I wish to warn, however, that results in this group are less satisfactory than in any other group of cases. Moreover, it is concerning this group that the most disagreement regarding type of operation exists. Undoubtedly the incidence of gastrojejunal ulcer following gastro-enterostomy or failure of the ulcer to heal following pyloroplasty will be higher than in the other groups. It is claimed by many that results in this type of the disease will be more satisfactory if a subtotal gastric resection is performed. This is particularly true if the acid content of the stomach is significantly elevated.

Gastric Ulcer.—I am strongly of the opinion that gastric ulcers in patients past the cancer age only occasionally should be treated medically. It is true that frequently medical therapy may cause amelioration of symptoms, but the great difficulty will lie in the inability to exclude gastric carcinoma which might be relieved symptomatically for the time being by medical therapy. Although gastric carcinoma is usually associated with low acid or total absence of acid in the stomach, this rule is scarcely reliable enough to allow us to base our decision for therapy upon it. Moreover, it is agreed that gastric carcinoma is preceded in from 5 to 10 per cent of instances by an ulcer.

If operation is performed, attempt should be made to do a subtotal gastrectomy although occasionally local excision will be justifiable. Only

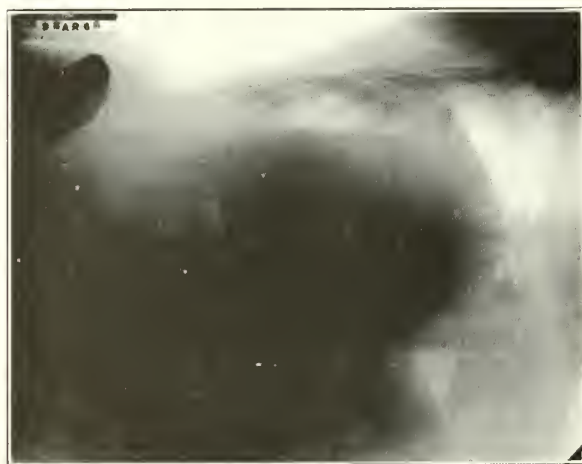


Fig. 2. Lateral view of abdomen taken seven days after onset of acute symptoms which were typical of a perforated ulcer. The patient came to the hospital forty eight hours after onset of symptoms and was so seriously ill that the only hope appeared to lie in conservative therapy in the hope that the perforation would seal over and the inflammatory process localize. This apparently happened. The abscess was drained through a small subcostal incision four or five days later. Such a circumstance represents about the only occasion when immediate operation for perforated ulcer is contraindicated.

when the ulcer is hopelessly adherent to vital structures such as the vena cava should gastro-enterostomy be resorted to.

POSTOPERATIVE TREATMENT

One of the most important factors in lowering mortality following operations on the intestinal tract has been improvement in postoperative treatment. One of the most important features in this treatment is the institution of decompression of the stomach by the Wangenstein technic. The tube should be inserted immediately after operation and decompression and suction continued as long as there is a stasis of fluid in the stomach. In operations such as gastro-enterostomy and gastric resection this tube can usually be removed within forty-eight hours. During the time when the tube is in place, the patient naturally must be given fluids intravenously in quantities up to 3000 cc. per day (preferably 5 or 10 per cent glucose) with an increased amount, if a significant quantity of fluid is obtained, via the Wangenstein drainage. A portion of this fluid should consist of physiological saline or Hartmann's solution. If desired, the electrolytes making up Hartmann's solution may be added to 5 per cent glucose. This makes a slightly hypertonic solution, but in our experience it has led to absolutely no untoward results. I wish to emphasize, however, that the patient rarely can tolerate more than from 1200 to 1500 cc. of physiological saline per day because of the possible development of salt edema. Blood transfusions should be used freely, particularly because of their apparent beneficial effect on edema at the stoma. After the Wangenstein tube has been removed, water is started by mouth and fluids given in increasing variety and quantity until a modified Sippy diet is being taken by the fifth postoperative day. After the patient has fully recovered from the operation, the diet may be more liberal. However, if symptoms reappear, measures including alkali therapy, diet and other disciplinary measures must be re-instituted.

GASTROJEJUNAL ULCER

Perhaps the most common cause of failure in the operative treatment of peptic ulcer is the formation of a gastrojejunal ulcer. This complication may be encountered in practically all operations including gastro-enterostomy and gastric resection. However, it appears to be somewhat more common following gastro-enterostomy, perhaps because this operation is used more widely than any of the others and in instances when indications for it are questionable. As stated previously, the type of lesion most apt to result in gastrojejunal ulcer following gastro-enterostomy is the duodenal ulcer of recent origin and without obstruction. It is because of this complication that many surgeons advise gastric resection in certain cases of duodenal ulcer, particularly if the acid content of the stomach is high and no obstruction is present. The patient should be put

on routine ulcer therapy in the hope that the gastrojejunal ulcer will heal. Usually, however, it will not heal and operative interference will be necessary. If the previous operation has been a gastro-enterostomy, a partial gastrectomy may be the procedure of choice. Usually it will be simpler to excise the ulcer and reestablish the normal continuity of the lumen of the stomach and jejunum. If this procedure is resorted to, the patient should be put back on an ulcer regime for a time at least. There is naturally danger of recurrence of the ulcer, but at least in a great portion of the cases recurrence of the ulcer is readily preventable. Gastric resection is perhaps followed by a lower incidence of gastrojejunal ulcer but the greater mortality following resection neutralizes to some extent this advantage. Unfortunately, a gastrojejunal ulcer may occasionally perforate into the colon or other adjacent structures. This complication is quite serious indeed and can usually be corrected only by operative means.

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PUPILS WITH HEARING DEFECTS BENEFIT FROM READING LIPS OF TEACHERS

Intelligent attempts of teachers to facilitate lip reading by pupils with defective hearing would be a tremendous advantage to such children in their school work. Louise M. Neuschutz, New York, suggests in *Hygeia, The Health Magazine* for December.

"For such pupils," she says, "a front seat near the window is almost a prerequisite. The face of the teacher should be in the light, so that the hard of hearing pupil can watch her lips. To speak as naturally as possible, moreover, avoiding exaggerated lip movements is the best way to help him. Word for word utterance is to be avoided. Eyes and mind cannot take in particles of speech; the lip reader must have a full sentence in view before he will be able to get at the context. Shouting and gesticulating will only serve to upset him, and he won't be able to understand anything. In case a sentence is hard to read from the lips, its phrasing might be changed, thus making it easier to see."

THE MEANING OF "FRESH AIR"

Opening a window will not necessarily let out bad air and let in "fresh air," it is pointed out in *Hygeia, The Health Magazine* in an article which explains: "The air in one's house may be 'fresher' than that outdoors. The fact that air may contain certain odors does not necessarily mean it is harmful, for it has been scientifically proved that odors in the air hurt no one."

INTERNAL FIXATION OF FRACTURES OF THE NECK OF THE FEMUR

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AND

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In spite of the growing popularity during the last eight years of internal fixation of fractures of the neck of the femur, it has never been presented in a scientific session before this Association. Therefore it was decided to present fundamentals including indications, advantages, technic, postoperative treatment and results to be expected in an endeavor to show that a treatment has been evolved for fracture of the neck of the femur which offers in a comparatively comfortable nonshocking way an excellent chance of bony union.

It is imperative that a distinction be made between intertrochanteric fractures (extracapsular) and fractures of the neck (intracapsular) of the femur. While closely associated anatomically they are, from the standpoint of pathology, physiology, treatment and prognosis, entirely different. Intertrochanteric fractures are through cancellus bone which has an excellent blood supply. The fractured surfaces are broad and are easily held reduced and in close approximation and practically always unite. The method of treatment to be used is that which, in the opinion of the attending physician, will hold the fragments reduced in the most comfortable way and at the same time protect and benefit the patient's general condition. Fractures of the neck are within the joint and bathed by synovial fluid. They are through compact bone. The head and neck have a poor blood supply, a part of which may be destroyed at the time of the injury. The fractured surfaces are small and are difficult to hold reduced in approximation. These and other reasons have been given for the poor percentage of union in fractures of the neck of the femur. The following discussion includes only the latter type of fracture.

METHODS USED PRIOR TO 1930

Methods of treatment used prior to 1930 and used too often even today may be classified as: (1) bed rest, pillows, sandbags, (2) bed rest with Buck's extension traction. These methods ignore the fracture and are in our opinion the least effective for the patient's general condition. The fractured surfaces rub together causing pain and constant shock. Bed sores are the rule. The genitourinary and gastro-intestinal systems cease to function properly. The patient has no hope, gives up and usually dies of pneumonia. (3) The Hodgen splint suspension and traction offers a comparatively comfortable method of treatment with little chance of

union but the patient has a better chance of surviving. Bed sores are less frequent but occur too often. The patient can move about to some extent by means of an overhead "monkey bar" and can sit almost erect in bed, thereby reducing the tendency towards hypostasis.

These three methods and their counterparts are to be strongly condemned. The mortality is high, the suffering intense and the chances of union almost nil. Unfortunately, however, too many fractures of the neck of the femur are still treated in some such fashion. This is especially true in areas where hospital and roentgen ray facilities are not available and transportation to larger centers for some reason is not feasible. Drs. Tinker and Tinker recently surveyed treatment of fracture of the neck of the femur in rural New York and learned that of 573 cases more than one third were treated in some way that ignored the fracture. The death percentage was over 50 per cent and union less than 15 per cent. Fractures that united were probably impacted. With such a death rate surely we can justifiably condemn such methods of treatment especially when there are methods available that are better for the patient's general condition and at the same time offer a far greater chance of union. As stated by Dr. Royal Whitman in a recent article "Neglect of the fracture in the alleged interest of the patient entails no responsibility, either moral or legal."

(4) As late as 1930 and even later the Whitman abduction cast was agreed upon by a great majority of the surgeons doing fracture work as the best method of treating fracture of the neck of the femur, that is, by fixation after reduction of the fracture in abduction, internal rotation and hyperextension. However, it was by no means satisfactory. The reduction and application of the plaster cast was often a shocking procedure. A minimum of twelve weeks in the cast was required which was a terrible ordeal for old people who make up the majority of such patients and many begged to be allowed to die. They had no hope for recovery. The gastro-intestinal and gastro-urinary functions were poor. Bed sores occurred frequently. Itching and discomfort beneath the cast was intense. Prolonged hospital and nursing expense had to be incurred. After removal of the cast, many painful weeks were spent in bed attempting to mobilize stiff joints, especially knees. Pneumonia often developed and the mortality was high.

In 1930 a commission of the American Orthopaedic Association investigated results obtained by the Whitman method in larger orthopedic centers and fracture clinics and found that, in spite of the data being obtained from the theoretically best qualified groups available to treat such injuries, the percentage of union was only 51.9 per cent. The mortality was 9.2 per cent. Therefore the Whitman method offered only about one chance in two of bony union and at best from six months to one

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*Deceased.

year of uncomfortable treatment. The life expectancy of many of these patients is not that long.

All these factors led to attempts by orthopedic surgeons to devise some method of internal fixation that would improve the percentage of bony union and at the same time shorten the period of confinement and recumbency.

INTERNAL FIXATION

"Spiking operations" date from "pre-abduction days" when union was not expected. Internal fixation was revived by Smith-Petersen on the logical premise that, since the capacity for repair of transcervical fractures in many cases had been demonstrated by the Whitman method, the percentage of nonunion might be materially reduced by accurate reduction of the fracture on open exposure and fixation secured by a nail. He used a three flanged stainless steel nail driven up through the neck of the femur into the head from the lateral surface of the femur just below the trochanter. This device had the advantage of combined tensile strength with minimum bone displacement and at the same time it prevented rotation of the fragments one upon the other. Originally the nail was inserted after open reduction of the fragments was performed.

It was discovered during open reduction that most fractures of the neck of the femur could be fairly accurately reduced by manipulation of the extremity in the manner described years ago by Royal Whitman and more accurately by the maneuvers described by Leadbetter, and that the failure of bony union was due not so much to the difficulty of accurate reduction of the fragments as to the insecurity of fixation or retention of this reduction by external splinting. It was then fairly obvious that if the three flanged nail or other fixation device could be introduced through a small incision below the great trochanter the major hazard of a technically difficult and, more important, a shocking surgical procedure could be obviated. Step by step a technic has been worked out in which, after reduction of the fragments verified by antero-posterior and lateral roentgen ray films, the flanged nail is inserted under roentgen ray control through a small incision at the base of the trochanter. This blind nailing has the advantage over open operation in its comparative freedom from danger and the percentage of union is materially higher because of less interference with nutrition.

In the hands of a competent surgeon with the essential equipment at hand, the reduction and fixation can be carried out under local anesthesia with no shock to the frailest of patients. In fact, the injection of local anesthesia into the joint around the fragments and the reduction and fixation before this local anesthesia has worn off usually materially relieves the shock which had been constantly present due to movement of the unreduced fragments and the pain resulting therefrom. Our first six

cases were handled by open reduction and were necessarily in patients who were good surgical risks. Since adopting the "blind nailing" in 1935, all grades of surgical risks have been nailed alike. Unless the patient be moribund, we know of no contraindication. The worse the patient's general condition, the stronger the indication for nailing. We have seen patients with circulatory failure and cardiac decompensation, apparently brought on or exaggerated by the shock caused by the unreduced fragments, revive considerably from their circulatory disturbances a few hours after the fixation of the fragments. Patients with beginning pulmonary hypostasis improve because they can be turned frequently or placed in a wheel chair without pain. Positive treatment of the fracture is the most conservative treatment of the patient.

Other methods than the Smith-Petersen nail have been developed in recent years. Moore pins, Knowles pins, lag screws and multiple Kirschner wires have all been used with success on the same premises as the nail. However the Smith-Petersen three flanged nail is most generally used for fixation and in our opinion is the most efficient.

IMPACTED FRACTURES

For many years we have known that a large percentage of impacted fractures of the hip result in bony union and upon this premise Cotton based his artificial impaction of fractures of the hip which he recommended many years ago. Generally, impacted fractures of the hip need little protection and treatment. Bed rest with sand bags for from six to eight weeks followed by moderate weight bearing with crutches will usually give good results. One must be positive of clinical impaction in addition to roentgen ray evidence of impaction. The patient should be able to flex, abduct, adduct and internally and externally rotate the hip. One must also be alert for signs of disimpaction of previously impacted fractures. This does occur frequently and can be verified by roentgen ray when it is suspected because of the inability of the patient to perform the movements of the hip.

In aged patients and those in a poor general condition we do not hesitate to recommend the nailing of a moderately impacted fracture in order that the patient may be out of bed in a wheel chair and on crutches at a much earlier date. One often sees an impaction in a poor position resulting in some shortening and external rotation of the limb. In young individuals we feel that this impaction should be broken up, the hip properly reduced and the fragments fixed by nailing.

The entire procedure is carried out under twilight and local anesthesia. Morphine sulphate, grs. 1/6, and hyoscine hydrochloride, grs. 1/260, are given one and one-fourth hours before the operation. The hyoscine is repeated fifteen minutes before operation. In the patient's room about 30 cc. of 1 per cent procaine is injected into the hip joint.

The patient is rolled to the operating room in the bed and by the time the transfer to the operating table is made anesthesia has occurred in the joint and no pain or resulting shock occur. The uninjured limb is abducted slightly and the foot fixed to some retaining object. With an assistant holding the pelvis against the table the fracture is reduced by the Leadbetter method (fig. 1a,b,c) of flexion of the hip and knee to a right angle followed by traction upward in the line of the thigh. Usually a click is felt and heard as the shortening is overcome. The hip is then rotated into complete internal rotation, moderate abduction and extension.

Leadbetter offered a test of reduction known as the heel-palm test (fig. 1d). The heel is allowed to rest unsupported on the outstretched palm and if reduction is complete the leg will remain in internal rotation and not fall outward into external rotation. Occasionally reduction will be complete and yet the leg will slowly go into external rotation because there has been no interlocking of the fragments. If there is rapid or slow rotation reduction should be repeated until it is satisfactory by the heel-palm test. If slow rotation persists one may feel that reduction is good and proceed. Either the leg must be strapped in complete internal rotation, moderate abduction and extension or, preferably, held there by an assistant. Antero-posterior and lateral roentgen ray films are made to check reduction. The feasibility of this entire procedure depends upon roentgenograms.

While these films are being developed an assistant prepares the upper lateral portion of the skin of the thigh and anesthetizes with novocain the skin and subcutaneous tissues over the trochanter and subtrochanteric area and the operator scrubs for operation. If satisfactory reduction, as shown



Fig. 1. a. First maneuver; hip flexed to 90 degrees. b. Second maneuver; with knee flexed traction is made in longitudinal axis of femur as indicated by arrow. c. Third maneuver; leg is circumducted into measured degree of abduction and internal rotation. d. Fourth maneuver; heel-palm test; with leg in abduction and internal rotation the heel is allowed to rest in outstretched palm. With complete reduction this position should be maintained without force. If leg rotates externally, reduction is not complete. (Leadbetter.²)

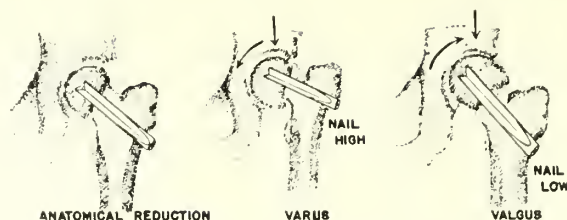


Fig. 2. Diagrammatic representation of fragments after reduction. Anatomical and valgus positions favorable. Varus position should not be accepted. Note effect of weight transmission (arrows) in the different positions. (Smith Petersen.⁴)

by the films, is not obtained, another attempt must be made. In the lateral view lateral rotation must be completely overcome and the apposition of the fragments must be in almost complete alignment. In the antero-posterior view anatomical or over-reduction (valgus) is satisfactory (fig. 2). We prefer the slight valgus position for reasons which will be shown later. Underreduction or varus is unacceptable and reduction must be done again using more traction and rotating into more abduction.

After satisfactory reduction and anesthetizing with novocain a short lateral subtrochanteric incision (fig. 3) is made through skin, fat, fascia lata

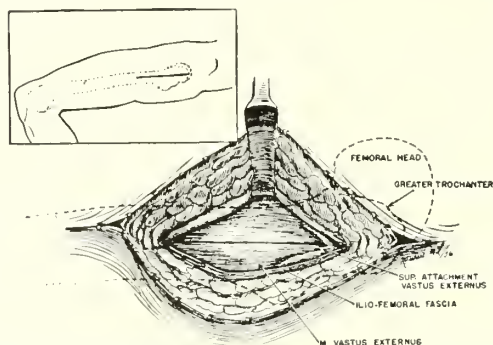


Fig. 3. Incision and exposure of vastus externus. Note superior attachment of the vastus externus. It is an important landmark. (Smith-Petersen.⁴)

and vastus lateralis down to the lateral surface of the femur which is exposed over an area about 1 by 2 inches. The field is now ready for the introduction of the nail. Many gadgets have been devised to act as guides for the nail. All have their merits but in our opinion are not essential. Many men use a cannulated nail to be inserted over a wire as a guide after the latter has been placed in a satisfactory position as shown by roentgen ray. We use neither a guide nor the cannulated nail because we believe the chances of error are just as great with it as without it. After exposure of the femur the direction of the neck can be palpated with the finger passed in front of or behind the femur. Also we know that the head of the femur underlies the point where the femoral artery crosses the inguinal ligament (fig. 4). These facts enable us to start the nail from a point about one inch distal to the base of the trochanter and pass it up the neck in a proper direction as would be shown by an antero-posterior view. In order to reduce

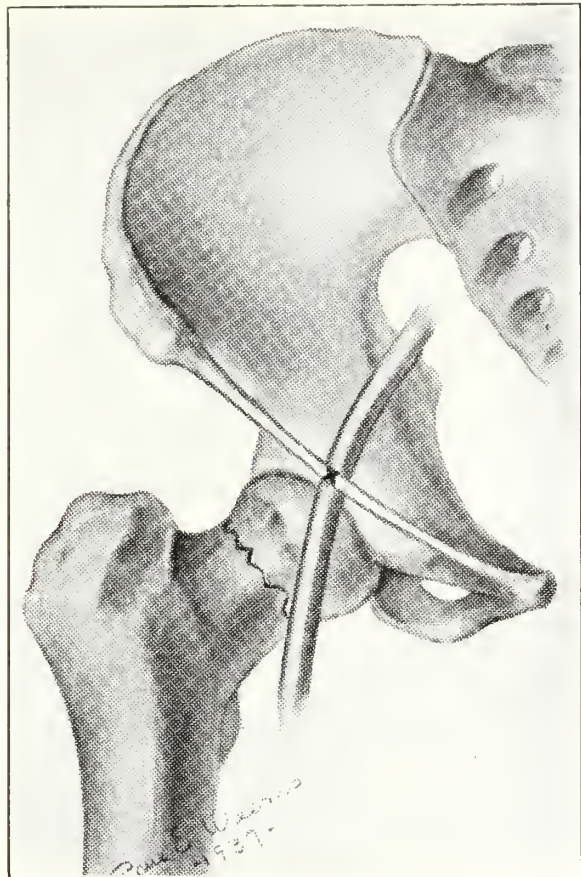


Fig. 4 Intersection of Poupart's ligament and femoral artery gives the surface landmark in locating the center of the head of the femur. (Thornton and Sanderson.⁶)

the shearing force when the patient begins walking, it is desirable that the nail be inserted as near perpendicular as possible and still enter the center of the head. Slight overreduction (valgus) allows such an angle for the nail. With the hip in complete internal rotation the neck of the femur is

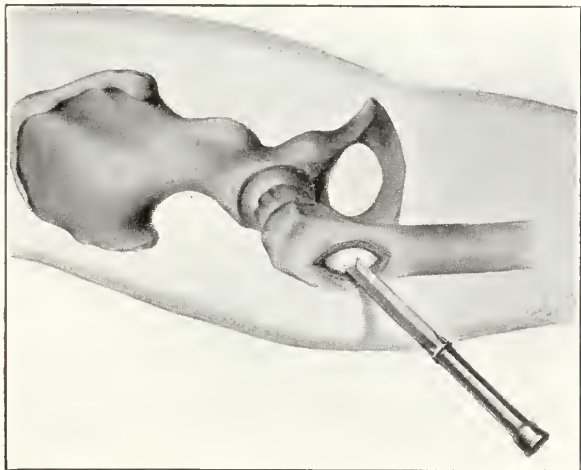


Fig. 5. The Smith-Petersen nail with White handle attached ready to be driven, through a small incision, into the lateral cortex of the shaft well below the greater trochanteric prominence. (Thornton and Sanderson.⁶)

parallel to the floor and therefore the nail is directed in a plane accordingly. The protractor-extractor apparatus devised by Dr. Warren White, or a similar one, is almost essential. The protractor on the nail gives length to compare the planes of nail and floor and a large head on which to hammer. The nail is driven through the cortex of the lateral surface of the femur midway between its anterior and posterior surfaces (fig. 5). A good deal of force is necessary to make the nail penetrate the cortex and a sharp osteotome may be used to cut it in the proper planes for the flanges of the nail. After the nail is through the cortex it is angulated so as to pass up the neck toward the head, all the time keeping the horizontal plane of the nail parallel with that of the floor. As the nail is driven in, one can tell by the tone obtained by the pounding of the hammer on the head of the protractor whether the nail is traveling up the neck or striking the opposite cortex.

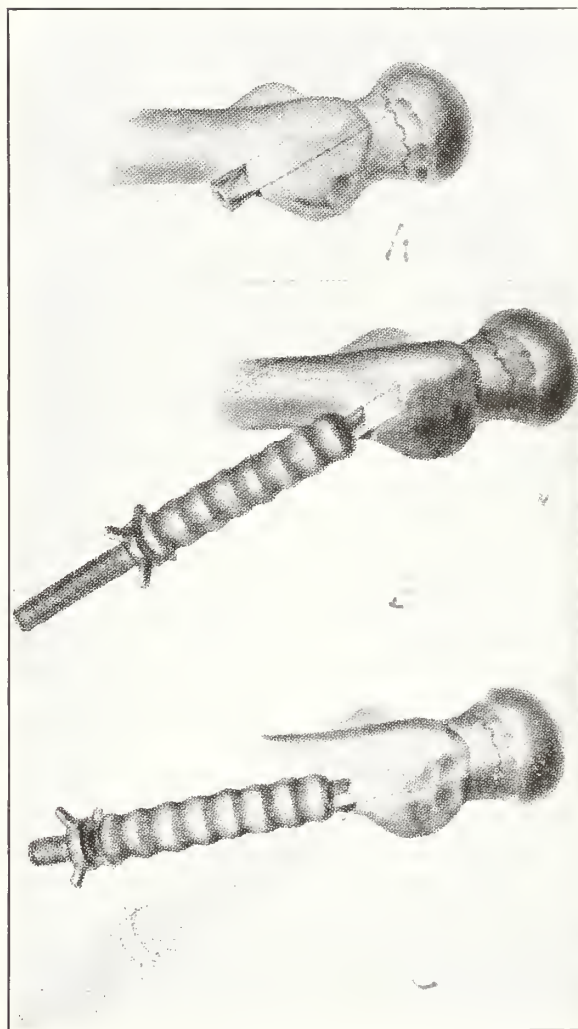


Fig. 6. a. Imperfect direction of the nail in lateral view. Method of correction shown in b and c. b. Partial extraction of a nail which has been driven "off center." c. The nail directed and driven into the center of head of the femur. (Thornton and Sanderson.⁶)

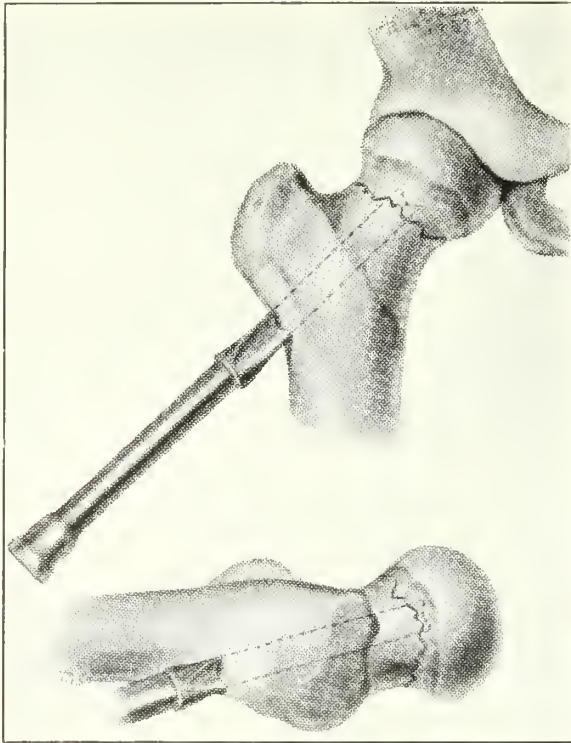


Fig. 7. Drawing of antero posterior and lateral views showing nail driven just past the line of fracture. (Thornton and Sanderson.⁶)

After the nail has been driven in about half way, antero-posterior and lateral roentgenograms are made to check the direction of the nail and also to determine that the correct position of the fragments has been maintained. It is expected that the position of the nail will need correction. After the pictures are developed and studied the nail is withdrawn to just below the cortex by means of the White extractor or some similar extractor. The direction of the nail is then corrected in both planes so that it can be driven up through the neck and to the center of the head (figs. 6 and 7). It is advisable to again check with antero-posterior and lateral views the position of the nail and if necessary again withdraw it and correct its direction. One withdrawal and redirecting is usually sufficient. The point of the nail is driven in as close to the articular cartilage of the head as possible. Then follows what we believe to be the most important maneuver of the entire procedure. A hollow object (impactor) is fitted over the small bit of nail projecting out of the cortex of the femur and several firm blows struck against its opposite end, thereby driving the outer fragment up the nail and impacting it into the head (fig. 8). The limb is now rotated in all directions so as to verify that the nail has not penetrated the wall of the acetabulum. The wound is closed in layers without drainage.

No postoperative fixation is necessary in the usual case. The patient is lifted into bed with the leg in slight abduction on a pillow surrounded by

sandbags. We frequently use skin traction of from 8 to 10 pounds for ten days. The traction avoids muscle spasm, keeping the limb in some abduction, and aids in nursing care.

The question of postoperative fixation is somewhat debatable. Of 1485 cases recently surveyed by the fracture committee of the American Academy of Orthopaedic Surgeons, plaster cast was used in 342 cases and adhesive traction in 349 cases leaving 794 cases treated without any postoperative fixation.

Postoperatively little sedation is necessary. It is advisable that inhalations of carbon dioxide and oxygen be given for a few minutes each hour to insure complete ventilation of the lungs as a preventive against pneumonia. The patient's back rest may be elevated and lowered as desired and pillows may be used under each shoulder and hip to turn the patient partially to either side. The period of time for the patient to be kept in bed varies with the general condition. We believe it advisable for a comparatively young patient in excellent physical condition to remain in bed for from four to six weeks but we do not hesitate to get older patients and those whose condition is not good in wheel chairs during the first week or two after operation. If necessary they may be in a wheel chair the day after operation. The soft tissue wound will heal better if the patient is kept in bed for about ten days. As soon as crutches may be handled properly the patient may walk with them.

As suggested by Thomson an excellent procedure is to have the heel and sole of the shoe on the well leg elevated from one half to three fourths of an inch. This in effect abducts the leg with the nailed hip, reducing the shearing force on the nail as the patient walks. It is much better to have the patient apply some weight to the injured limb than to swing it as it dangles. The weight applied is a stimulus to union and prevents bony atrophy. In hips nailed in slight valgus position, the nail theoretically is driven more firmly into the head with each step. Check-up films of the hip should be taken about once a month until union occurs in order to ascertain whether the nail is being extruded as occasionally occurs, whether there is any evidence of aseptic necrosis of the head which also occasionally occurs and to determine the progress of union. The length of time that crutches are to be used will

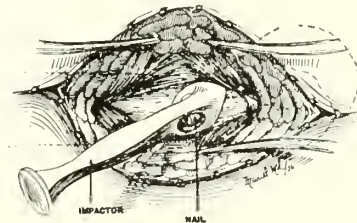


Fig. 8. The nail has been driven home; the author's impactor in position. Impaction should not be overdone, but should bring about apposition and interlocking of fragments. (Smith Petersen.⁴)

vary with each case. We have seen a patient walk without the aid of crutches beginning one week postoperatively and obtain an excellent result. However, this is by no means recommended. It seems best that crutches be used with a gradually increasing weight until three or four months after operation. One crutch or a cane may be used for an additional one or two months. It requires from four to six months to determine definitely whether or not union is taking place and whether aseptic necrosis of the head is developing. The fact that such a condition does develop is sufficient reason to have the patient avoid full weight bearing for from four to six months.

Until two years ago we felt it advisable always to remove the nail after from six to twelve months. However, with the improved quality of highly polished chrome-nickel steel it is probable that the nail need not be removed. We have several patients who have carried the nails for more than two years with no ill effects. There is definitely no objection to removal of the nail and in comparatively young individuals we advise it. The nail may be removed under local anesthesia and as a general rule no force is required for extracting it.

While the last word has not been said on the treatment of this fracture, internal fixation is certainly here to stay and we believe that the treatment of fracture of the neck of the femur must be considered operative as much as fracture of the patella with wide separation. The advantages are obvious. The treatment is attended by little shock and discomfort. Aged people enter the hospital fearing the body cast more than anything else and when told that it is not necessary they are most grateful and cooperative. Pain in the hip subsides almost immediately after the operation. The patient is given something to fight for when told that he may be in a wheel chair after a few weeks and on crutches soon thereafter. Hospital and nursing expense is greatly reduced. One patient whose hip was nailed last month was up in a wheel chair on the fifth day and was sent to her home in an ambulance on the thirteenth postoperative day. Above all, the chances for bony union are from 85 to 95 per cent.

The survey of the Fracture Committee men-

tioned previously included 1485 cases treated by internal fixation between 1903 and 1938. The accompanying tables compiled from the survey show the number treated by the various types of fixation, the mortality and percentages of union. Results were reported in 1055 cases. Eight hundred eighty-two or 83.6 per cent had bony union leaving a percentage of nonunion of 16.4 per cent. When we realize that this survey dates back to 1903 we can anticipate even a better percentage of bony union in the years to come. Blind nailing is now generally done, the quality of metal is much better and undoubtedly each man doing this work has a more exact technic today than he had several years ago. It is probable that a survey of cases treated by internal fixation in 1936, 1937 and 1938 will show a percentage of bony union well over 90 per cent. Certainly it is fair to say that every aged person who sustains that injury which each one fears, a fracture of the neck of the femur, deserves the advantage of having his injury treated by internal fixation.

3720 Washington.

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DISCUSSION

DR. S. A. GRANTHAM, Joplin: Dr. Hampton's paper deserves better comment than I shall be able to make. However, in the smaller towns such as Joplin we occasionally run across illuminating experiences even though the number of cases we see is not large. I had a patient, aged 82 years, who had a bilateral fracture of the neck of the femur, one of which was of six months' duration, one noninflammatory and the other an impacted fracture. I obtained bony union in one and fibrous union in the other. It is my observation that most fractures will respond beautifully to this method, but the nonunion fractures one sees probably will respond to different forms of treatment. I wish to thank Dr. Hampton for his splendid presentation.

DR. ROBERT M. SCHAUFFLER, Kansas City: The paper is fine and there is no question about this being the method of choice and that we are going to get better results than ever before. With this method we have

Table 1. Method of Fixation, 1903-1938 Inclusive

No. of Cases	SP-Nails	Moore Pins	Knowles Pins	Screws	Wires or Duplicates	Others
1485	883	396	71	61	36	38

Table 2. Mortality (No Relation to Type Fixation)

No. of Cases	First Week	First Month	Total	Percentage
1485	20	83	127	8.5

Table 3. Results Reported

No. of Cases	Bony Union	Nonunion
1055	882 (83.6%)	173 (16.4%)

done much better than before and the patients are much more comfortable. As to substituting a guide wire for the nail, I am not competent to discuss that, for I have not considered it.

I would like to say a word about impacted fractures of the neck of the femur. Some men are pessimistic about them and think a great many will come apart. I am not optimistic, and in some cases I know they do come apart, but I do not know which ones. Therefore it seems we might be justified in nailing a good many of these impacted fractures immediately. The patient often would like to get out of an operation and it will be thirty days or more before you can tell whether there will be absorption along the line of fracture. You can hardly see the fracture at all when the patient comes in but in thirty days you can see it quite distinctly. It has mechanically gotten out of position and the bone has absorbed, and usually in from four to six weeks you have to nail the fracture anyhow. But you would not dare not check up on possible absorption at the end of four or five weeks.

When the patient elects not to have an operation it seems to me it is better instead of putting him in a cast and keeping him strictly in bed for six or eight weeks to put him on a walking splint and let him be up and about to a limited degree on that fracture. I think one has a better chance of keeping the impaction and taking up the slack when there is absorption with weight-bearing without friction.

DR. O. P. HAMPTON, JR., closing: I appreciate the discussion. The question of recent old cases still is a problem. I nailed recently by the blind method a ten weeks

old case but this is the longest time after fracture that I have nailed the fragments blindly. Many of the patients with fractures two or three months old are ill but blind nailing is a simple procedure if the old people are willing to take the chance. I believe most of them will get a bony or good fibrous union. Time alone will determine the results in these cases.

The procedure as outlined in our paper is not as traumatizing to the femoral cortex as it seems. Many men now are using the wire guides but this is not without danger and I have talked to men who have had a wire get out of the neck of the femur and very close to the femoral artery. Guides do not always work and any trauma from an extra insertion of the nail by the method outlined is at a point where it does no harm.

The thing I want to emphasize is the excellent outlook for these old people. They want bony union, but despair of the long period of treatment. If you tell them that they can be in a chair in a week and on crutches in two to four weeks, life picks up for them. The better the patient's condition, the better is the chance for complete recovery. We like to keep young people in bed for six weeks but in old people we treat the patient, and certainly the best treatment for the patient's general condition is getting him out of bed and walking.

As to impacted fractures, any kind of treatment is good that will permit use of the hip, putting a definite amount of weight on it but not letting it buckle. In impacted fractures the shoe on the well side also can be built up. That throws weight on the fracture with the leg in an abducted position and stimulates bony union.

SYMPOSIUM ON BARBITURIC ACID

BARBITURIC ACID DERMATITIS WITH PHOTSENSITIZATION

G. V. STRYKER, M.D.

ST. LOUIS

In presenting this paper it is intended to point out the dangers encountered in the nature of edematous eruptions with erythema, vesiculation and scaling which result from cutaneous drug allergy or idiosyncrasy; also dermatitis resulting from a reaction of the photodynamic type in a skin which has been photosensitized by the presence of barbituric acid.

Drug idiosyncrasy, a state of hypersensitiveness which produces a characteristic but abnormal reaction to a normal dose, has been widely known for many years. The dangers of allergic reactions to arsphenamine, salicylates, quinine, morphine, phenolphthalein, procaine hydrochloride, belladonna, iodides, bromine, antipyrine and, lately, sulfanilamide have been repeatedly stressed by many authors.^{1,2,3}

The dangers inherent in the widespread use of barbiturates have not been sufficiently stressed. Few case reports are available in the literature, yet it is a safe assumption that reactions of various types including cutaneous phenomena are frequent. Trostler⁴ calls attention to three cases of erythema in patients who were receiving roentgen ray while

taking elixir of phenobarbital. In these cases the erythema did not recur on subsequent roentgen ray therapy after the barbiturate was discontinued.

Sweitzer and Laymon⁵ report four cases of severe cutaneous reaction to barbiturates, three of which were fatal. These authors quote Sulzberger as being of the opinion that the barbiturates may cause sensitization to light, leukopenia and vascular damage.

As knowledge of the dangers of the barbiturates become more widespread the consensus of the profession and the public no doubt will be in favor of more rigid control of the sale and more conservative use of these potent agents. The case herein reported demonstrates the erythematous type of dermatitis with edema of the skin, toxic symptoms of stupor and rise in temperature followed by photosensitization.

REPORT OF CASE

G. E., baby girl, aged 2 years, was first seen October 7, 1938. The mother said the child developed an eruption on the face ten days previously which rapidly spread to the entire body. At the same time the child became listless and slept most of the time. The mother

said there had been no prodromal illness except "epileptic" fits for which the baby had been given one pill daily for six weeks. No other drugs had been given. There had been no vomiting or diarrhea.

Examination revealed a well developed child whose skin over the entire body was red and swollen and exfoliating fine scales. The features of the face were distorted. The child was apathetic and could be roused only by severe shaking.

The past history was negative except for spells which were called fits of "epilepsy." A true history of epilepsy, either grand mal or petit mal, was never obtained from the parents. Subsequent observation led to the conclusion that the fits were from temper. There was no previous history of allergy to food, inhalants or drugs. The family history was irrelevant and negative for allergy.

Laboratory Examination.—Urine was normal except for presence of acetone. Gutzeit test revealed no arsenic. Blood count was 19,750 leukocytes, 4,950,000 red cells, 14 mg. Hb. There was a slight shift to the left in the Schilling blood picture. Throat cultures were negative. Wassermann and Ide tests were negative.

The child was admitted to the children's ward of St. John's Hospital with a temperature ranging from 98 to 100.8 F. The baby was seen at this time by Dr. P. J. Manion who agreed with the diagnosis of drug eruption and stated that in his experience reactions similar to this were encountered in babies who had been taking barbiturates.

Treatment consisted solely of stopping the pills, rest, forced fluids, frequent feedings and local soothing applications for the relief of itching. By the sixth day the temperature had returned to normal, the swelling had subsided and the baby was alert and happy. Patient was discharged on October 14, 1938.

One month following discharge from the hospital the skin had returned to a normal color and there was no edema but a dry follicular hyperkeratosis remained over most of the body, especially on the extensor surfaces of the extremities and the scalp. Administration of vitamin A in the form of cod liver oil effected an improvement within a few weeks.

On March 21, 1939, four months following time of discharge, the baby was returned complaining of dermatitis of the face and arms. Examination revealed that an erythematous eruption was present over the nose, fleshy areas of the cheeks, lobes of the ears, the chin, a V shaped area over the suprasternal notch, the side of the lower half of the arm and outer surface of the forearm and backs of the hands. This eruption appeared suddenly twenty-four hours after the baby had been permitted to play out of doors without a hat and in a short sleeved dress because of unusually mild weather. The dermatitis was sharply limited to those areas which had been exposed to the sun, none appearing on the covered parts of the body.

A diagnosis of dermatitis, the result of photosensitization, was made. Specimens of urine tested at this time showed small quantities of barbital. In addition to this the urine showed porphyrin which was demonstrated by the method of Garrod.

As no drugs had been administered since prior to hospitalization, it was concluded that the barbital remaining in the tissues produced a state of cutaneous photosensitivity. The baby was observed at frequent intervals for the next four months during which time there was no recurrence of dermatitis. Repeated examinations of urine showed the barbital decreasing gradually as did the porphyrin. This was concomitant with clinical improvement of the patient. Patient has remained well since that time.

Missouri Building.

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BARBITURATES SHOULD BE SOLD ONLY ON PRESCRIPTION

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The Missouri State Medical Association's Committee on Study of Medical Practice Laws has been actively mindful of the public health need for restricting the sale of barbituric acid and its derivatives to persons who are under the supervision of qualified medical attendants. The Committee is grateful to have this opportunity to enter a discussion of the matter. A proposed bill on this subject has undergone its seventh revision in committee during the last three years. It was deemed advisable to secure the endorsement of interested organizations before submitting a bill to the General Assembly of Missouri. Next year, this Committee will probably offer the following proposed bill, subjoined, to the House of Delegates for consideration and action.

"Section 1. The sale or gift of barbituric acid (diethyl-barbituric acid), chloral, paraldehyde, sul-

fonal (sulfonmethane), thyroid, androgenous or estrogenous hormone substances, dinitrophenol, dinitro-cresol, cinchophen (phenylquinoline carboxylic acid), sulfanilamide, benzedrine, or derivatives and compounds thereof under any registered, copyrighted, trade-mark or chemical name except by manufacturers or chemical houses to wholesale drug houses or to hospitals or retail pharmacies, and legally practicing physicians, dentists or veterinarians, and by retail pharmacies except on the prescription of a legally practicing physician, dentist or veterinarian, is hereby prohibited. All orders or prescriptions made by a legally practicing physician, dentist or veterinarian shall be kept on file by the physician, hospital or pharmacy for at least two years and shall be subject to inspection by any officer of the law, or any officer of the Department of Health. No copy or duplicate of such order or prescription shall be made or delivered to any per-

Chairman, Committee on Study of Medical Practice Laws.

Congress into prompt activity and it passed the new law.

It is futile to be so idealistic as to conclude that because the state needs the protection of such a law, it will be passed as soon as it is drafted and presented to the General Assembly. One cannot be that sanguine even about one of the more selfish bits of legislation which may be strongly backed financially. Such altruistic public health bills as this can be expected to arouse the strong opposition of those who assume a vested interest in the abuse of the use of drugs. Those misguided people

habituated to the use of drugs will regard it as an unwarranted interference with their personal liberty. The "counter prescriber" and some retail druggists will oppose it. There may be a few physicians, even, who may see in it just another legal regulation of the medical profession. We believe a careful analytic consideration from a sane viewpoint will reveal that the public and the profession will be better off with these harmful drugs kept out of the hands of unwary people by means of a law.

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THE USE OF BARBITURATES IN MENTAL HOSPITALS

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Except in surgical anesthesia the barbiturates are used almost exclusively in the treatment of psychiatric conditions and the mental hospital, more than any other, has a definite need for this type of medication. In former days the bromide eruption and the unpleasant taste and disagreeable smell of paraldehyde were things to conjure with in a psychiatric institution. Today there are the various new derivatives of barbituric acid all readily administered, relatively harmless and promptly effective in their action.

The various uses made of the barbiturates in a mental institution may be considered under the following headings: (1) an anti-convulsant in the treatment of epilepsy, (2) an energy-conserving agent in the treatment of acute manic states, (3) a palliative agent in the treatment of drug addiction and acute alcoholism, (4) a sedative for the restless patient, (5) a symptomatic treatment in the management of chronic or recurring disturbed states and (6) a non-psychiatric use, a method of surgical anesthesia or preparation for surgical anesthesia.

The greatest amount of barbiturate used in a mental hospital is administered in an attempt to control the convulsions of epilepsy. For this purpose the phenol derivative is employed and is usually found most effective. The dose varies from 1½ to 3 grains daily. Many cases are relieved of convulsions on a lower daily dose while a few appear to benefit from an intake greater than 3 grains per day.

Because of its lower cost phenobarbital has not as yet been supplanted by dilantin. While the latter successfully checks the convulsions without the objectionable depressant and hypnotic action of phenobarbital it is many times more costly. In some instances, particularly in non-psychotic patients likely to be released within a short time, dilantin may be preferable. In many cases of longer duration, those tending to have frequent convul-

sions or showing marked deterioration, phenobarbital seems to be the more practical drug.

In the routine administration of phenobarbital in epilepsy it is imperative that the dosage as well as the condition of the patient be checked at frequent intervals so that the dose may be reduced to a minimum. The depressant and hypnotic action is recognized as undesirable when phenobarbital is used for this purpose but this action can be much lessened by a careful study of the minimal dose for the individual case. The dose should be the lowest possible that will effectively or satisfactorily control the attacks.

The most important use for a barbiturate in the treatment of the mentally ill is in patients in acute and intensely maniacal states so frequently admitted to mental hospitals. These conditions are found not only in the manic phase of the manic depressive psychoses but also in paresis, agitated depressed states and schizophrenia. They often run a prolonged and stormy course and have been notoriously difficult to manage. The marked hyperactivity is prone to continue to the point of exhaustion which may result even in death. These conditions occur so often in the recoverable affective reaction types of psychoses that any improvement in the technic of treatment is desirable.

The patient is subjected to a precisely outlined routine of periodic narcosis employing one of the newer barbituric acid derivatives. Under this regime of treatment no deaths have occurred and not only has the management of the case become much less difficult but the duration of the illness is shortened remarkably. This is perhaps the most gratifying use in psychiatry to which a barbiturate can be put.

In instituting treatment for narcotic addiction or acute alcoholism barbiturates are found helpful for the relief of those distressing symptoms which appear when a patient is denied his accustomed amount of the narcotic or alcohol. Unless there is some contraindication the drug or the alcohol is

usually withdrawn from the patient immediately upon his admission to the hospital. As a result of this sudden deprivation the patient often becomes acutely distressed within a few hours, exhibiting the so-called withdrawal symptoms. It is for the relief of these symptoms, incident to the treatment, that moderate doses of a barbiturate may be employed.

In treating the narcotic addict it is usually desirable to continue moderate sedation for some days. Barbiturate in conjunction with continuous flowing baths usually relieves the sufferer promptly of the symptoms of withdrawal formerly so troublesome in the treatment of this type of patient. The treatment of the addiction itself is not within the scope of this topic.

Acute alcoholism, it appears, responds promptly to an initial administration of a suitable barbiturate along with hydrotherapy in the form of continuous flowing bath or the wet sheet pack and intensive vitamin therapy. For the latter, nicotinic acid is used in fairly massive doses. Under this method of treatment it is found that the barbiturate need be given for the first day or two only, after which the patient continues reasonably comfortable during the remainder of the treatment.

In institutions for the mentally ill there are many patients, particularly the elderly, who suffer periods of restlessness or sleeplessness. One is not always certain whether the restlessness is a symptom of the patient's mental condition or whether it results from the overcrowding and the closeness with which patients are brought together. In either case moderate doses of barbiturate afford the patient the necessary rest and sleep, in this manner preventing more serious conditions from developing.

The management of either the recurrent or the chronic maniacal states always presents a problem in a mental institution. On a crowded hall one or two noisy, meddlesome patients, who have failed to benefit from other forms of therapy, may have a disturbing effect on all of the other susceptible patients on the hall. Efforts, of course, should be made to afford the patient an adequate outlet for energy through employment, exercise or occupational therapy. Hydrotherapy, in the form of continuous flowing baths or wet sheet packs, should be used. This procedure does much to allay the periods of disturbance in this type of patient, but frequently there are patients who fail to respond to any of the usual forms of treatment and who

often choose the midnight hours to vent their feelings. In such cases barbiturates are administered in about the average dose. In this manner relief is afforded not only to the patient to whom it is administered but to all his companions on the ward for whom his excitement might prove "contagious."

This can be considered a form of restraint—chemical restraint—if you will, but it is a procedure so beneficial to everyone concerned and harmful to none that it is regarded as a most essential form of treatment. Sedatives should not be used merely to keep patients quiet. Only when there is definite indication in those patients failing to respond physiologically to other available forms of treatment should sedation be used. Recently, metrazol administered intravenously in convulsing doses has been found effective in controlling some of these chronic disturbed states.

In addition to these essentially psychiatric uses, barbiturates are used in mental hospitals also as anesthetics in surgical procedures or for tranquilization of the patient preliminary to a general anesthesia. Continued mild sedation may be necessary for a time following an operation in order to prevent a patient who is disturbed and unable to cooperate from contaminating or otherwise interfering with a surgical wound.

The many preparations of barbiturates now available assist greatly in bringing comfort and relief to many of the various types of patients treated in a mental hospital. The epileptic may be entirely relieved of his seizures. He may have them less severely or at longer intervals. The acutely maniacal patient is given rest and is brought to the point of recovery in a much shorter period of time than formerly. Drug addicts are spared much of the suffering incident to the removal of the drug. The mildly restless patients are given repose and the recurring disturbed states become more amenable to treatment.

All this is attained with no harm to the patient. I have never seen barbiturates, used in the ways described, bring about addiction to the drug. The few cases of barbital addiction that have come to my attention had an extremely apparent underlying psychiatric basis for their addiction.

I feel, therefore, that without the barbiturates now at our disposal we would indeed be handicapped in the institutional care of those who are stricken mentally.

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THE SIDE EFFECTS OF BARBITURATE SEDATION: THEIR CLINICAL IMPORTANCE

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"Please put me to sleep, doctor." There is nothing in the practice of medicine more poignant than these words. Physiologists tell us that sleep is not necessary for rest and relief from pain; that all one needs to do is to relax. This is undoubtedly true,

but it is an unusual person who knows how to achieve relaxation in any way other than through sleep.

There are many known drugs which will produce varying degrees of narcosis in man, and the

great majority of these belong to the methane series of narcotics. Methane itself is an open chain hydrocarbon gas, whose chemical formula is CH_4 . From substitutions, reductions, additions and combinations of methane are derived ethyl alcohol, ether and chloroform, nitrous oxide (the earliest synthesized narcotic of this series), ethylene and the so-called soporifics or hypnotics, i. e., the simple sleep producers of the chloral and barbituric acid groups.

The general pharmacological action of all these drugs is similar in character and consists of a first stage of imperfect consciousness and confused ideas followed by one of wild excitement and, eventually, by complete unconsciousness which may terminate in death. The second stage is much more marked with some of the series than with others, sometimes being entirely absent. This excitement stage is due to the functions of control and inhibition being lessened and the centers of motion thus left free to act more strongly than normally.

The action on the central nervous system is elicited by comparatively small quantities of these drugs, but the different members of the group vary greatly in their chemical affinities and in their tendency to enter into chemical combinations and no relation can be found between their narcotic action and the presence of any one chemical radical. This suggests that their effects depend on the properties of the molecule as a whole and not on a chemical combination being formed with any constituent of the tissues.

Meyer¹ and Overton² have independently suggested an interesting view on the action of these narcotics; they attribute it to a common physical character. They point out that practically all of these narcotics are more soluble in oils and lipoids than in aqueous solutions and when one of these drugs in watery solution meets an oil or lipid it passes from the water to the oil and remains dissolved in it. The same process naturally occurs when these drugs are carried in the blood. They tend to leave the watery plasma and accumulate in the lipoids of the body and, as the nerve cells are richest in lipoids, the narcotics accumulate in the brain, especially in the cerebral cortex, the subcortical ganglia and the hypothalamic portion of the diencephalon.³

This theory of Meyer's and Overton's has been amply substantiated and explains a large number of clinical observations on the action of these drugs. There is, however, some other factor besides the coefficient of absorption in oil as yet unknown which has to do with the degree of narcosis caused by the individual drugs of this series.

It seems likely that the distribution of these drugs in the central nervous system is largely determined by the relative solubility in water and lipoids, but after the narcotics have penetrated the brain cells the effect depends on some further quality which is still unknown.

As has been stated, the members of this group

closely resemble each other but are used for quite different purposes therapeutically: alcohol as a tonic although for centuries it was the only known anesthetic, the lower hydrocarbon members of the group as general anesthetics and the higher and more complicated members, specifically the barbituric acid derivatives, as soporifics and sedatives. However, there is no hard and fast line differentiating these groups for small doses of chloroform and ether will produce sleep and rest while large doses of certain of the barbiturates will produce surgical anesthesia. All of these drugs have actions and effects other than narcosis. These are termed side effects and upon them largely depends the therapeutic value of the methane narcotics. Especially is this true in regard to their use as sedatives and soporifics.

Unfortunately for the therapeutic armamentarium the untoward side effects of barbituric acid and its derivatives make the use of these drugs a hazardous procedure. Mott et al. in 1925⁴ became alarmed at the number of cases being admitted to the London hospitals with either acute or chronic barbiturate poisoning from which a high percentage of fatalities resulted. They performed a large number of animal experiments giving repeated doses of the barbiturate derivatives. At autopsy they discovered the presence of a mucinoid material in the substance of the brain cells. This substance being in all probability a metabolic product, according to Pickworth,⁵ nervous tissue metabolism must be inhibited according to the "mass action" effect and recovery and repair processes are greatly impaired.

Pickworth carried this work further and suggests that this process occurs only in subacute or chronic barbital poisoning. Vanderhorst⁶ conducted a somewhat similar experiment on cats but found no mucinoid material. However, as Robinson⁷ points out, Vanderhorst used a single lethal dose of barbiturates causing an acute poisoning, while Mott and Pickworth used repeated sublethal doses and sacrificed their animals by means other than barbiturate poisoning. This is amply substantiated in the literature as the nerve cell is unchanged in persons dying from a lethal dose of the barbituric acid derivatives while in habituates it shows the mucinoid changes before mentioned.⁸ Robinson further points out that one finds many neurological symptoms in barbiturate habituates, some of which have a clinical resemblance to multiple sclerosis, others to lethargic encephalitis, paresis, muscular amyotrophies and delirium tremens. These symptoms are never found in acute poisoning cases (which if fatal reveal an edematous and hemorrhagic brain at postmortem⁸) but are always due to the long continued use of the barbituric acid derivatives.

Sollman⁹ gives the following slowly developing symptoms as due to chronic barbiturate poisoning: nervous depression, gastro-intestinal disturbances and skin eruptions. These later develop into men-

tal confusion, muscular weakness and ataxia, almost continuous vomiting, abdominal pain particularly about the epigastrium with an enlargement of the liver and obstinate diarrhea or constipation. The urine contains hematoporphyrin, red blood cells, albumin, casts and other evidences of protein destruction, disturbed metabolism and kidney and liver damage. Physiologically these clinical findings indicate a much lessened or exhausted glycogen reserve, a fatty infiltration⁸ of the liver with a liver cell damage and, as a result a decreased secretion of bile, hemolysis of the blood and decreased protein metabolism as well as a general reduction in the oxidation of all oxidizable body constituents.

In summarizing the physiological action and the pathological consequence of barbiturate administration, there is apparently no permanent pathological change in the organism following one large sublethal dose although the ataxia, incoordination, nystagmus and other evidences of central nervous system dysfunction seen in all cases of acute barbiturate poisoning are not only toxic phenomena but are evidences of a pathological process in the brain.^{7,9} These physiopathological conditions seen in acute barbiturate poisoning are evidently reversible for, unless death ensues, there are no residual symptoms found in those cases which have died from other causes at a later date.

However, the accumulated damage from repeated heavy doses will eventually destroy enough nervous tissue to permanently lessen the efficiency of the organism.⁷ This occurs although the lethal dose of the barbituric acid derivatives is almost doubled by the tolerance acquired through addiction to the drug.^{3,10} Nevertheless, this tolerance does not increase the narrow margin of safety that is probably the most dangerous factor in the use of the barbiturates,¹¹ especially if the use of these drugs has continued for any great length of time. These changes are found whenever large doses of barbituric acid or its derivatives have been given over a long period of time and these laboratory and pathological findings can be demonstrated easily. It is quite logical to assume that small doses of the barbiturates given repeatedly will cause the same pathological damage and physiological changes in a lesser degree.

Jankovich and Fazekas¹² have made an extensive study on the effect of long, continuous phenobarbital usage. They conclude that it is harmful to the human organism. Its toxic and apparently its

therapeutic action depends largely on its effect on the ganglion cells in certain areas which in some cases are irreparably damaged. Fay¹³ states, even more emphatically, that he believes the mental deterioration seen in epileptic patients is due more to the long continued use of the barbiturates than to the disease.

It is impossible for the pathological damage and physiological change resulting from small continuous doses of the barbiturates to be determined with present laboratory methods. It will be a great help to the medical profession when laboratory results can be a quantitative rather than a rough qualitative procedure, for then minute pathological damage and physiological change can be detected and means be taken to check these morbid conditions early.

CONCLUSIONS

1. Many of the methane series of narcotics will produce hypnosis.
2. The higher and more complicated members of this series, the barbituric acid derivatives, produce severe pathological changes in the organism when given in large doses over any moderate length of time.
3. Even the small therapeutic doses when frequently repeated cause a moderate amount of tissue destruction.
4. The barbiturates have an affinity for nervous tissue cells and destruction is most marked in the higher centers of the central nervous system.

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OBSERVATIONS ON ADDICTION TO BARBITURIC ACID DERIVATIVES

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Physicians are becoming increasingly aware of the many potential dangers of indiscriminate barbiturate therapy. It gradually is being shown that all of the derivatives are potentially dangerous but,

because some are used only in anesthesia and some are relatively new, the worst offenders are the old standbys that physicians have been prescribing, druggists selling and patients taking for nervous-

ness and insomnia for many years. Two years ago I published a review¹ of the subject, pointing out the potential danger of addiction with all these drugs, the many toxic side effects which develop in those addicted and gave certain explanations for these conditions. I wish to review the subject briefly, emphasizing certain points which, in light of recent experiences, should be stressed even more strongly than was done in the previous publication.

In its true meaning addiction is not necessarily a pharmacological state but, rather, a state of mind frequently resulting from physical dysfunction which causes discomfort which the patient feels he cannot tolerate and for which he is constantly seeking relief. This definition can be criticized by the comment that all patients go to physicians primarily to seek relief from discomfort. There is an additional factor, however, that sets the potential addict apart. This patient is more interested in immediate relief than in a thorough search for a cause, the removal of which would relieve the symptoms. Some men use the word habituation to distinguish "mental" addiction from addiction seen in morphinism where there are real physical symptoms at the time of withdrawal. From the standpoint of this discussion addiction and habituation have the same end results.

A two-fold analysis should be made to determine whether the subjective complaints completely overshadow the objective findings or whether relief from symptoms is the only or main purpose of the visit. If one or both of these factors is a prominent part of the patient's clinical picture, the physician should be careful what he prescribes and what he says about the medicine he intends to give the patient.

This brief discussion cannot take into consideration the various pathological, psychological or physiological factors responsible for this state of mind. The psychological state is the background for all addictions regardless of whether morphine, alcohol, barbiturates or other drugs are used.

Barbituric acid derivatives never have any curative value but are drugs indicated for symptomatic relief. Their use indicates that the cause has not been determined or, if determined, cannot be corrected. Two exceptions are the use of barbitals to lower apprehension preoperatively, and to relieve symptoms while the cause is being corrected.

The most important factor in this problem is the situation that exists as to self-administration. The most conscientious physician cannot combat this alone. His prescriptions in some cases are refilled without his knowledge and if the druggist cooperates fully the patient may go to another druggist, describe his sleeping potion and buy as much as he wishes. He continues to take them without restriction or without any check-up as to the effect they may be having.

I believe this is the focal point of the whole problem. Barbituric acid derivatives are all toxic to a certain extent although some are more so than oth-

ers. Pharmacologically and pathologically there are four expected effects: sedation with depression of many physiological functions; destruction of brain tissue with doses under the lethal limits; death from overdoses due primarily to depression of physiology, chiefly respiration, and a gradually developing tolerance to the sedative effect but no tolerance to the destructive effect or to the lethal effect from physiological depression.

The patient indulging in self-administration who demands complete relief soon finds that the initial doses of drugs are no longer satisfactory and gradually increases them. He soon is taking a dose that is noticeably toxic. This state of intoxication manifests itself by a feeling of heaviness, mild dizziness, nervousness and restlessness resulting from the depression of physiological activities, chiefly in the various elements of carbohydrate metabolism and liver function. This cycle produces increased distress and more subjective symptoms so that the patient has to have more drugs to overcome the effect of those which he has already taken and enters the danger zone where his dose reaches destructive levels. Mott,² Vanderhorst,³ Stone,⁴ McLeod and Ernest,⁵ Hassin⁶ and others have reported the changes occurring in the brain from barbital poisoning, fatal and non-fatal, both in humans and in experimental animals.

In a state of chronic barbital toxemia definite cerebral changes develop in the brain. Fortunately, most of these changes are reversible but some are not and over a period of years enough destruction may take place to affect the personality of the individual. These patients lose much of their ability to reach rapid conclusions where finer judgment is needed, their memories are affected and it is difficult or even impossible for them to learn new activities requiring any precision.

Case 1 in our original report¹ illustrates this point. This was a young married woman addicted to barbituric acid derivatives who had been at one time a capable office worker. While under our care she was incapable of learning the simplest elements of our office procedures. Superficially she seemed to be as formerly but when called upon to use new judgments she failed completely. We have had two similar cases since then.

When any sedative drug is taken over a period of time in toxic doses, nervous reactions and mental states may develop from the drug itself. These states are so similar in many cases to the original complaints that they are not recognized. The patient thinks he is worse and takes more and more of the drug. Many times the physician does not recognize the condition and increases the dose. The primary condition may have cleared up and the only condition present be drug toxemia. Hanes and Yates⁷ and Wagner and Bunbury⁸ showed that 16 per cent and 7 per cent respectively of patients admitted to various psychopathic hospitals suffered from drug toxemias and nothing else. Their work was done on bromides because of the exactness of

blood bromide determinations. Alpert¹² has shown that bromides are less toxic than barbital and produce less disturbance of the physiology. If similar tests of equal exactness could be made on barbital, the percentage might be even higher. About 10 per cent of all patients admitted to the Neurological Hospital in 1937 and 1938 had barbital psychosis.

There is always the potential danger of a lethal dose. No tolerance is developed for the drugs as for the destructive elements. As the dose is increased it gradually approaches the minimum lethal level. Many so-called barbital suicides are actually the result of overdoses taken not to kill but to give relief from the toxic effects of preceding doses.

I have no figure available on the total number of barbital deaths. Death records are unreliable where a possibility of suicide or a mental or addictive state exists. I know that there were three barbital deaths in Kansas City General Hospital during September 1939 and that several other patients were admitted during that time with acute barbital poisoning. This is only one hospital in one community, and from this it would seem that the problem warrants considerable thought. If this proportion held in the hospitals of the country, the number of barbital deaths each month would be more than 2,000.

The problem can be summed up as follows. Certain personality types may be classified as potentially addictive. These patients will continue to take a quieting drug if it is possible for them to get it and the majority will increase the dosage gradually to continue to get the desired effect. The dosage soon reaches a toxic level which may destroy brain tissue or where a lethal potentiality exists. Because the drug suppresses certain elements of physiology, natural reconstructive forces may be interfered with so that transitory physiological disturbances may become chronic.

This is a problem which the medical profession can solve. Legal measures are needed but, until and even after they come, physicians must direct and control the situation. Self-administration must be stopped. Physicians and pharmacists can cooperate so that the barbituric acid derivatives cannot be bought promiscuously. The physician should take the whole problem to the druggist and request that these tablets and capsules not be sold except by prescription and that his prescriptions be not refilled except by the physician's permission. This type of cooperation would be an ideal arrangement, but if the druggist will not cooperate, the physician should take matters into his own hands and dispense these drugs himself without writing prescriptions. The physician can change the capsule so that it will not be distinctive and cannot be bought by description. Physicians should demand that ethical drug houses stop packing their preparations in distinctive packages and in distinctively shaped and colored tablets and capsules.

Such a step requires the cooperation of all physicians so that economic pressure could be brought to bear on houses that failed to cooperate. The only reason for distinctive packages is so the layman may easily purchase the drug, thereby increasing sales. If the drug houses wished the physicians to keep control of this particular situation, they would place obstacles in the way of self-administration of these drugs.

Miller, writing in *Hygeia* and as reviewed in the *Readers Digest*, July 1938, states: "Sales of sleeping pills are 'enormous,' in the words of Dr. Mary M. Rising of the University of Chicago, scientist who helped develop some of these drugs. 'Millions are spent for the purchase of these drugs,' says Dr. Soma Weiss, Associate Professor of Medicine, Harvard Medical School. Druggists in large cities say that sleeping pills now sell as fast as aspirin and laxatives. The problem is discussed with concern at meetings of medical societies.

"The sleeping-pill habit has spread until debutantes, business men, stenographers and housewives are steady purchasers of the 'sedatives' sold under a score of trade names—allonal, alurate, amyntal, dial, luminal, nembutal, neonal and so on.

"Writes Dr. R. L. Hunter of West Virginia: 'I could report at least 20 cases here in Boone County. Some are now in the asylum, some in jail, some in hospitals, eight or ten are home, well—and some are dead. Others will die or be committed to an asylum before the lawmaking bodies wake up.'

This should make every thoughtful physician stop and think. The entire article should be read carefully.

It should not be necessary to wait for lawmakers. The physicians of the country are largely responsible for the situation. We have been too gullible in accepting the statements of the manufacturers and, worse if possible, we have passed those statements on to the laymen. Patients have been told by the family doctors, the consulting specialists, their nurses and others in authority that they can take this medicine as long as they want to, that it will not hurt them and will not form a habit. There may have been a time when the knowledge of the dangers of these drugs was so limited that such statements could be made with sincerity but that day is past, and when a physician makes such a statement today he is demonstrating an ignorance of the true facts which is not in keeping with his position in the community.

The thoughtful physician will study each case with these facts in mind. He will use the barbiturates when indicated but only after he has explained to the patient and to the patient's relatives exactly why he is giving the drug, the dangers of the preparation, its potential addictive power and the absolute necessity of frequent check-ups to determine the presence of toxicity. He will remember that these drugs are symptomatic treatment measures and while the patient is under his care he will do everything in his power to eliminate the

causes of physical, physiological and psychological symptoms so that the patient will have no further need of symptomatic relief. Karnosh¹⁰ emphasizes this aspect of the correct handling of the problem of insomnia and points out the many measures of treatment available. If a patient should become addicted, the physician will take all means, no matter how heroic, to correct the condition as soon as possible. This problem can be solved by the physicians themselves if they will recognize the facts and make a complete about-face in their attitude.

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BARBITURIC ACID AND MENTAL HEALTH

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The first barbituric acid preparations available to the profession, and largely through the profession also to the public, were veronal (barbital) and medinal (sodium barbital) which soon gained favor as hypnotics and sedatives. Later came phenobarbital and the considerable number of the other members of this group. Their use never has been entirely under the control of physicians and now is less so than formerly.

These preparations are used most widely by persons with mental ill health, either under the direction of a physician or independently by the patient. The condition may be a frank psychosis, a state of insomnia, anxiety-depression, emotional instability, loss of attentive control, regrets over past events and experiences, fears for what the future may bring or a state of introversion with a feeling of inferiority. All are in reality states of mental ill health and the patient is a potential drug or alcoholic addict. In such conditions barbituric acid compounds have some virtue as temporary relievers of insomnia and mental distress, but the administration should be controlled by a physician and not left to the patient's discretion.

Some years ago a patient went to a physician's office taking with her a box of 5 grain veronal tablets. She had been told she was taking veronal. The directions on the box were: "Take one when nervous." She was nervous all the time and one may guess the results. Another young lady entered a hospital, sent by her home physician with a diagnosis of brain tumor. She had intense vertigo with ataxia, dysarthria, nystagmus and retarded ideation. The symptoms disappeared shortly after the discontinuance of the rather large doses of phenobarbital which her physician had been giving her for headache and nervousness.

Barbital is the lazy doctor's drug, also the ignorant doctor's drug. It is so easy to prescribe it for

the various types of nervousness without going to the bother of ascertaining the basic cause of the ill health and prescribing a course of treatment that would promote recovery rather than just temporary easement.

That barbituric acid is a poison to the brain can be proved easily. Small doses occasionally and large doses invariably cause the untoward symptoms of vertigo with general muscular incoordination, ataxia, dysarthria, nystagmus, mental hebetude with inability to ideate and, in some cases, an active delirium which is sometimes encountered after the administration of even small doses of sodium amytal.

Phenobarbital has been proclaimed a cure for epilepsy. It is not a cure and has little value in the treatment of any of the epilepsies. Nevertheless, even capable physicians will give it to patients without restrictions, leaving the administration entirely to the discretion of the patients, some of whom take the drug for years with no supervision. Phenobarbital is a carboic acid compound and phenol compounds are not kind to the renal structures. Also, phenobarbital, if taken over a period of time by the epileptic, will act as a potent factor in promoting the development of the mental deterioration so commonly seen in the epilepsies.

Barbituric acid compounds are used widely by alcoholic addicts either with or without medical advice. Alcohol and barbituric acid are both brain poisons. The result is barbituric acid impairment of brain function added to impairment resulting from alcoholic intoxication. Barbituric acid compounds do not promote but delay recovery in mental ill health. They further impair an already impaired brain nutrition. The basic and major causes of mental ill health are two: first, a brain not properly organized, with defective association of the various areas and deficient ability to convert food

energy into nerve energy; and second, a poor ability to store up an adequate reserve of nerve energy to meet crises of stress and strain. Sugar is the chief food of the brain for its activity. Any poison of endogenous or exogenous origin circulating in the brain reduces the ability of the brain to metabolize sugar. Sugar tolerance tests are made routinely at the Neurological Hospital. In practically 100 per cent of all cases of psychoses, neuroses and alcoholic and narcotic addiction there is found an abnormally low ability to metabolize sugar.

What is the answer? Shall we administer toxic drugs which further lower this ability, or give them sane and rational treatment which promotes sugar metabolism, corrects an abnormal metabolism and

restores an abnormal brain function to normal? Insulin promotes sugar metabolism. Insulin, if wisely administered, is an excellent sedative and hypnotic and given with glucose does correct states of disordered brain nutrition and also corrects disordered brain function which is responsible for all forms of mental ill health.

In the treatment of mental ill health, barbituric acid compounds have a place, but only to meet emergencies and temporarily to relieve the patient of insomnia and mental distress. It is a form of medication which may be temporarily helpful in relieving symptoms but if continued over a period of days or weeks will do much more harm than good.

Neurological Hospital.

SOME UNDESIRABLE EFFECTS OF BARBITURIC ACID AND ITS DERIVATIVES

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AND

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Barbiturates are compounds derived by substituting alkyl or aryl groups for the hydrogen atoms, malonyl urea or barbituric acid. The acid is not a true organic acid in that it does not contain the carboxyl group and is only slightly soluble in water. The salt, however, is quite soluble but is unstable in solution. The numerous compounds derived by substituting different groups for hydrogen atoms of barbituric acid vary greatly in their pharmacological effect due to the rate of absorption, rate of excretion and other undetermined factors. The different compounds vary greatly in their ability to form solution and therefore in rate of absorption. Excretion is almost entirely by way of the kidney. Certain of the compounds are recoverable in the urine unchanged and others are broken down. The rate of excretion depends to some extent upon the solubility of the compound and varies greatly, some being entirely excreted in a few hours, others requiring as long as nine days.

Tolerance is acquired by repeated administration, resulting in diminished effect. Acute poisoning is quite common following overdosage, either accidental or intentional. In acute poisoning the following symptoms may occur: marked fall of blood pressure, depression or paralysis of respiration, fall of body temperature, convulsions or mydriasis although myosis is the rule. In acute poisoning stimulants are indicated including caffeine, metrazol and camphor. However, these are not always effective. Picrotoxin, a drug derived from *Cocculus indicus*, has proven quite effective in a number of cases. Rovenstine,¹ Stevens and Anderson,² Bleckwenn and Masten,³ and Platt and Saltman⁴ have reported good results from using picrotoxin in barbiturate poisoning. These workers have given large doses, some of the totals amounting to

more than 600 mgs. for a period of several days. The drug is administered in from 3 to 10 mgs. doses as frequently as every ten minutes. Picrotoxin acts as a pharmacological antidote for the barbiturates, the amount, rate and method of administration of the drug depending upon the clinical symptoms shown and the type and quantity of barbiturate taken. Convulsions may occur during the administration of picrotoxin and it is then necessary to counteract the effects with more barbiturates. This sometimes increases the original symptoms. The Council on Pharmacy and Chemistry of the American Medical Association⁵ reports that the statistics upon the results of the use of picrotoxin in poisoning by barbiturates are not favorable. It is shown by their report that the percentage of recoveries from acute barbiturate poisonings is probably no greater after the administration of picrotoxin than in those cases in which picrotoxin is not used.

Mott⁶ and his coworkers in 1926 reported their findings on a series of experiments in which heavy doses of veronal were given to dogs and cats over a period of several days. In the animals in which the drug had been administered for seven days or longer, numerous masses of peculiar mucoid material were found throughout the nervous system. Signs of degeneration of the cells in the midbrain, cerebellum and spinal cord were found. Phagocytic cells were seen at the site of cell degeneration. Vanderhorst⁷ found degenerative changes in the ganglion cells of the brains of cats after single doses of barbituric acid compounds were administered. These same changes have been found in human brains after suicide by barbiturates. Stone⁸ reports a case of barbital poisoning which resembled multiple sclerosis. Chronic barbital poisoning often closely simulated lethargic encephalitis.

It is apparent that the promiscuous use of barbiturates has become a problem. Statistics show that this menace is markedly reduced in the states that have proper laws to control the administration and distribution of barbiturates. It is quite evident that the barbiturate menace will continue as long as individuals are at liberty to buy drugs with lethal properties from drug stores without prescriptions from licensed physicians.

Several states have considered this condition a menace, as was cited recently in the Organization Section of the Journal of the American Medical Association.⁹ Several states have enacted laws to restrict the sale of barbiturates and such laws were pending at the time of this report in other states. Unsuccessful attempts were made in Mississippi to prohibit the retail sale or distribution of barbituric acid compounds except on the written prescription of a licensed physician, dentist or veterinarian. The legislature of South Carolina reacted unfavorably to attempts to repeal the law enacted in 1937 prohibiting the retail sales or distribution except by virtue of the prescription of a licensed physician, dentist or veterinarian.

At the annual meeting of the Council on Pharmacy and Chemistry of the American Medical Association in March 1938 the Board of Trustees requested the Council to report on the promiscuous use of barbiturates in view of the widespread abuses of these drugs. This report was made by Hambourger.¹⁰ The report begins as follows: "The effects of these drugs include habit formation, toxic cumulative action, their substitution for alcoholic beverages for drunken episodes, their use for successful as well as unsuccessful suicide attempts and their improper use being a recognized etiological factor in some criminal assaults." Hambourger collected data which showed that the sales of barbituric acid and derivatives in the United States, including those both with medical supervision and without, amounted to 1,215,000,000 grains in 1936. He was unable to evaluate what part was used without prescription or medical supervision.

The United States Bureau of Census reports that within the five year period of 1932 to 1936 there were 634 successful suicides by all barbiturates or 2.2 per cent of suicides by all drugs and poisons, gaseous as well as liquids and solids. Barbiturate suicides constituted .66 per cent of suicides by all means. Hambourger¹⁰ points out that the data for this five year period indicate a definite increase in the incidence of suicides by the barbiturates in more recent years, while the frequency of suicides by liquid and solid poisons and of total suicides have both slightly declined.

Hambourger¹⁰ obtained a report from the Metropolitan Life Insurance Company which showed that 6 per cent of all suicides by drugs of their policy holders were due to barbiturates during the years 1935 to 1937. During the same period 18 per cent of accidental deaths were caused by barbiturates. The actual number of these accidental

deaths which might have been intentional suicides could not be definitely determined. Hambourger also obtained statistics from various coroners and medical examiners in seven large cities and their associated counties. These statistics show 1.25 per cent of suicides by all methods were caused by barbiturates. This percentage is about double that found in the statistics of the Metropolitan Life Insurance Company and the United States Bureau of Census, indicating that there exists a higher incidence of suicide by barbiturates in the larger cities than in rural areas.

State Hospital No. 2.

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SWELLING OF MOUTH DUE TO MANGO

Two cases of swelling and inflammation around the mouth caused by eating mango fruit are cited by Samuel J. Zakon, M.D., Chicago, in *The Journal of the American Medical Association* for November 11.

The condition is attributed to a substance contained in the peel of the fruit before ripening which protects it from insects. "This substance," the author explains, "remains so active in some varieties, even after the fruit has ripened, as to affect some people eating the fruit with what is known as 'mango poisoning.'"

"With the increasing use of this fruit in the daily diet, the mango should be seriously considered as a causative factor in acute skin inflammation of the face."

ADDISON'S DISEASE AND PNEUMONIA

The recovery from pneumonia of a patient with Addison's disease is reported by Ford K. Hick, M.D., and Broda O. Barnes, M.D., Chicago, in *The Journal of the American Medical Association* for November 18.

Up to the present the outlook for patients with Addison's disease, when complicated by other infections, the authors state, has been hopeless. They controlled the disease in their patients by desoxycorticosterone. This is a synthetic glandular-like extract. They believe that the complete recovery of their patient from pneumonia further confirms the efficiency of treating Addison's disease with desoxycorticosterone. Another complicating infection should not upset these patients too much, provided a specific treatment is available for the infection.

Addison's disease is characterized by emaciation, dehydration, anemia, digestive disorders, pigmentation and diarrhea. The condition is due to a glandular deficiency affecting the metabolism of salt and water.

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EDITORIALS

BARBITURIC ACID: TOPIC OF THE MONTH

The Postgraduate Correlating Committee selected "Barbituric Acid" as the topic of the month for the December issue of THE JOURNAL and discussions of barbituric acid and its derivatives, uses and dangers appear in this issue. "Crippling Diseases of Childhood" will be the topic of the month in the January issue.

THE PUBLIC AND THE BARBITURATES

The knowledge that barbiturates are harmful, even fatal, is not restricted to the medical profession. Data from one hospital, the St. Louis City Hospital, showed that in 1937 barbiturates ranked second in causes of acute poisoning cases handled by that hospital.¹ The proportion that were suicidal of course is undetermined but the inference is that many were and, also, that barbiturates are becoming one of the leading methods of suicide.

Further, that barbiturates are harmful and also that means of control are necessary is known by the public is shown in the following editorial which appeared in the *St. Louis Star-Times* of September 18, 1939, under the heading "An Incident and An Issue":

"The three little children who last Friday divided and ate what apparently was a 'sleeping tablet' they had found on the sidewalk happily recovered with no serious effects except a few hours of slumber at City Hospital. A very important issue, however, is re-emphasized by this incident.

"Missouri has been shockingly derelict in regulating the traffic in powerful hypnotics and patented sleeping medicines which have been produced in recent years by skilled chemists. In their place these products serve a useful purpose. In the wrong place—which means when they can be sold without any restriction in every corner drug store—they are dangerous.

"The ordinary sleeping tablet is not a narcotic. It is not deadly and habit forming in the sense that

cocaine and heroin are habit forming. These products are powerful enough, though, that their purchase by the general public should be permitted only on the order of a proper person—a dentist or physician or similarly qualified professional man.

"A number of states, including New York, have prohibited the sale of the barbiturates except on prescription. Their sale is prohibited except on prescription throughout Great Britain. In this country in the states where sale still is unregulated, the medical profession is becoming disturbed about the steady increase in their use by people who are 'nervous' or who imagine that they cannot go to sleep without taking a pill or two.

"Spokesmen of the Missouri State Medical Association have advocated legislation providing for regulation of the sale of the barbiturates, but have not pushed the matter seriously in the last four years because other pressing issues demanded attention. The medical association should lay plans to sponsor a regulation bill in the next session of the General Assembly. Such a bill is becoming vital in the interests of public health and safety."

THE UNIVERSITY OF MISSOURI, 1839-1939

The year 1939 is the century milestone along the road of progress traversed by the University of Missouri since its founding. That it has reached a position of dignity and eminence in the field of higher education, and that it has ably fulfilled its purpose of service to the citizens of Missouri, is unquestionably established.

The Board of Curators planned a centennial celebration divided into three sections. The administrative and legislative group celebrated with a Founders' Day Banquet on February 11, 1939. The academic commemoration was held in conjunction with the annual meeting of the representatives of the Association of American Universities in Columbia, October 30 to November 1, 1939. The Alumni Association's celebration took place November 3 and 4, 1939.

The University and the state have paused to review the history of the institution's struggles, mistakes and achievements during one hundred years in order to appraise these experiences of the University of yesterday in the light of the status of the University of today, on which the greater University of tomorrow will be built.

In 1839 the State of Missouri was still experiencing the growing pains of its young statehood. It had been in the Union but eighteen years and the Union was beginning to bend before the growing intersectional storms over states' rights in regard to the slavery question. Missouri, a border state, admitted as a compromise between opposing forces, experienced the full fury of sectional bitterness which was a power retarding the development of many of the state's institutions.

Agitation for an institution of higher learning had begun in the 1820's. The settlers were imbued

1. Friedewald, Vincent E.: The Incidence and Mortality of Acute Poisonings, *J. Missouri M. A.* 36:411 (October) 1939.

with the Jeffersonian concept of equal educational opportunities provided by public funds. This agitation continued and on February 11, 1839, the Tenth General Assembly passed the Geyer Act which provided for the establishing of a "seminary of learning." This was the birth of the University of Missouri.

Later, when it was decided to locate the University centrally in the state, feverish bidding was made by the central counties. Boone County offered the largest bonus, \$117,500, for location at Columbia, its county seat, and this location was selected on June 24, 1839, and the cornerstone of the first building was laid July 4, 1840.

State history and University history are closely interwoven. Politics played a great part in the school's existence. In the beginning, Boone County was predominately Whig in its political predilections which caused Jacksonian Democrats to withhold aid from the institution. The Assembly even withheld the power to grant degrees from the Board of Curators. The first two students to qualify for graduation had to wait until 1843 before the degrees of Bachelor of Arts were conferred upon them.

The student body in 1843 numbered seventy-three, most of whom were from Boone County or the nearby counties. The enrollment was small because few parents could afford to send their children to college and also there was a feeling that the school was strictly a local and aristocratic college, which idea was not changed until some years after the Civil War.

The first president, John H. Lathrop, served eight years. His Yankee background incurred much local opposition and local politics and personal antagonism made his position unpleasant. He was an able administrator and made many sacrifices for the struggling institution including the waiving of his own salary when legislative support was not forthcoming.

The first medical school of the University was established under Lathrop. In 1846 the Missouri Medical College of St. Louis, founded by Dr. John McDowell, was merged with the University as the Medical Department of the University of Missouri. The school, however, was entirely independent and was only a nominal division of the University. In 1856 the two institutions dropped the association.

Lathrop's successor, Dr. James Shannon, was Irish, a Southerner and a religious zealot. His term of office was a stormy one due to his violent partisanship in the public questions of the time. He was forced to resign in 1856. Through all this strife, the faculty steadfastly maintained sound academic standards. The appointment to the presidency of W. W. Hudson, first professor of mathematics and astronomy, silenced the opposition and during his term of office the school progressed.

The period during the Civil War was a sorry one for the University. The Assembly provided no funds, students were at war in both armies, Federal

troops used the University building for a barracks and library books were used for camp fires. By 1862 the enrollment had fallen to twenty-three and the University had fallen into a state of dilapidation.

The Geyer Act establishing the University had provided for an unworkable system of control by the University of all higher education in the state, at the same time leaving the University decentralized and each unit self-governing. Efforts of reform were unsuccessful until 1867 when Daniel Read was brought from Wisconsin to assume the presidency.

It was Read who was responsible for the change in the history of the institution from college to university status. He persuaded the General Assembly to appropriate regular funds for the support of the school. He instituted new methods and broadened the curriculum to include agriculture, mining and metallurgy, teaching, law and military science. The location of the new College of Agriculture precipitated one of the last great struggles over the University in the General Assembly. Reconstructionists in the Assembly debated for several years whether to locate the new division in another part of the state or at Columbia but in 1870 it was added to the University at Columbia. In 1871 the School of Mines and Metallurgy was opened at Rolla. In 1872 a School of Law was established with Philemon Bliss, Justice of the Missouri Supreme Court, as its first head.

In 1873 the present School of Medicine was established at Columbia and instruction was formally begun on February 17, 1873. Two years of instruction constituted the course which led to the degree of Doctor of Medicine. The first graduating class, five in all, received the M.D. degree in 1874. The enrollment of the entire University for the year 1873-1874 was 401 students. Dr. Joseph G. Norwood, Professor of "Chemistry, Institutes of Medicine and Medical Jurisprudence," was the first dean of the school. He served from 1872 to 1886.

Dr. Norwood was succeeded by Dr. Andrew W. McAlester, Professor of Surgery and Obstetrics, the author of the movement to found the school and a guiding spirit from its origin until long after his retirement in 1909. He was chairman of the administrative committee under Dean Norwood. Dr. McAlester studied in England, receiving great inspiration from the clinics of Dr. Joseph Lister. This had profound influence on his attitude toward medical sciences during an official administration of more than thirty years. Dr. McAlester did much for the field of medical education and his interest in the profession as a whole is well known in Missouri. As president of the Missouri State Medical Association in 1878-1879, he worked unceasingly for the professionalization of the practice of medicine and the raising of requirements for medical education and stressed the importance of a liberal education for the medical man.

The fire of 1892 which destroyed Academic Hall, the main University building, again started agita-

tion for the removal of the University from Columbia. Boone County raised \$50,000 to keep the school there. President Richard Henry Jesse saw a vast opportunity to expand facilities as well as to improve teaching methods and, when reconstruction was complete, a greater University was the result.

In 1903 the University was given Class A rating by the Carnegie Foundation and was admitted into the Association of American Universities. Thus began a new era. The school became a university of all the state and began to assume its aspect of a modern institution of higher learning with a modern faculty, equipment and ideas. Growth and expansion followed rapidly. New buildings were added and new divisions of instruction were instituted, the next division to be added being the School of Education in 1903. The School of Nursing had been established in 1901.

Dr. A. Ross Hill succeeded Dr. Jesse in 1907. The School of Journalism was founded in 1908; the Graduate School in 1909, and the School of Business and Public Administration in 1914.

The School of Medicine suspended the clinical years of teaching in 1909, due primarily to inadequate clinical facilities and clinical material for teaching. From its beginning, the School of Medicine has encouraged the gaining of a liberal education as a sound preparation for the profession of medicine. Before 1910 it had required two years of liberal college study as a prerequisite for admission, and this was raised to three years in 1927.

Dr. C. M. Jackson became dean of the school in 1909 upon the retirement of Dr. McAlester and served until 1913 when Dr. Guy L. Noyes was appointed Acting Dean and Dean in 1917. He was succeeded by Dean Edgar Allen who resigned in 1933 to accept the chair of anatomy at Yale University. Dr. Dudley S. Conley was appointed to the deanship in 1933 and is now the incumbent.

In 1920 the major physical equipment of the School of Medicine included the medical laboratory building (McAlester Hall) housing the Public Health laboratories, the medical library and the medical science laboratories; an animal house; Chemistry Building; Biology Building, and Parker Hospital which was then the only unit in the Student Health Service, an integral part of the School of Medicine. To these were added Noyes Hospital in 1924 and the Student Health Center in 1936.

From 1920 to 1930 there was no drastic variation in the steady progress of the School of Medicine. The departments of instruction were further strengthened and augmented as the advances of science and research demanded. Various changes in the personnel of the teaching staff occurred but the faculty maintained a high standard of efficiency and capability. In 1925 the degree of Bachelor of Science in Medicine was granted for the first time, certificates having been given to those students who had completed the preclinical studies prior to that time.

In October 1930 President Walter Williams rec-

ommended, and the Board of Curators authorized, the re-establishment of the clinical years, the third year curriculum to be offered September 1931 and the fourth year curriculum to start in September 1932. Accordingly a free clinic to provide further teaching material was established at the University Hospitals in 1930. Other clinical facilities were used at Boone County Hospital in Columbia and other hospitals in nearby cities. The third year curriculum was offered in 1931 and a small class completed the work in 1932. Due to financial conditions, the University found it necessary to discontinue the third year and abandon the plan for the fourth year effective September 1932.

Since 1927 the rehabilitation of indigent crippled children under the State Crippled Children's Service has been an integral part of the work of the University Hospitals.

The School of Medicine enjoys the highest rating given to medical colleges and for many years has been a member of the Association of American Medical Colleges. Leadership and activity are looked upon as basic and necessary functions of those who are members of the various departments of teaching. The faculty always has conducted a commendable amount of medical research and has contributed largely to medical literature.

Since 1932 the School of Medicine has continued the two year preclinical course and the policy of the school has remained essentially the same. Courses and methods of instruction follow largely the well known and commonly used patterns in the presentation of subject matter in the various departments. The school makes no experiments in medical education for it cannot jeopardize the opportunity for students to transfer to other schools for the completion of their medical studies.

The Alumni Association of the School of Medicine includes all former students and graduates. Many of its members have attained national recognition for medical research, medical teaching and medical practice. About 50 per cent of the graduates of the school have established their practice of medicine in Missouri.

The University of Missouri, in all its divisions, has progressed and expanded. Since 1920 there have been four changes in the presidency. John Carleton Jones succeeded A. Ross Hill, and in turn was followed by Stratton D. Brooks. Walter Williams left the dean's chair of the School of Journalism in 1929 to become president and held that office until shortly before his death in 1935. Frederick A. Middlebush became president in 1935 and is now the incumbent.

Today the University of Missouri is in the finest condition in its history in regard to enrollment, management and physical equipment. The public mind is solidly behind it and the people of Missouri look to it as the center of learning in the state.

The future of the University is correspondingly bright because it offers a service to the people of the state which grows greater each day. The peo-

ple of Missouri take pride in their university because they are aware of its usefulness and its prominence in their daily lives. The seeds sown by the early citizens of this state, in founding an institution of higher learning, fell upon good soil and have produced sound fruit. The harvest has been more than 60,000 alumni; men and women who have benefited by the educational opportunities afforded by the state. These trained men and women have added immeasurably to the advancement of Missouri in all aspects of life in this state and in all fields of endeavor. Not only have they contributed to the professional and economic fields, but also have developed those intangible characteristics that make for well rounded, satisfactory and civilized living.

NEWS NOTES

Dr. A. N. Lemoine, Kansas City, was a guest speaker at an afternoon and evening meeting of the Dallas (Texas) Eye, Ear, Nose and Throat Society on November 7.

Dr. E. H. Hashinger, Kansas City, addressed the Sedgwick County (Kansas) Medical Society at Wichita on November 21 on "The Causes and Treatment of Obesity."

Dr. Peter Heinbecker, St. Louis, spoke before the Trudeau Club of St. Louis on October 26 on "An Operation for the Establishment of Collateral Circulation to the Heart."

The St. Louis Surgical Society met November 15 at 8:30 p. m. at the DePaul Hospital, St. Louis. Appearing on the program were Drs. Willard Bartlett, Jr., Henry A. Hassett, Charles A. Stone, J. W. Thompson, R. Emmet Kane and George Carroll.

Drs. H. S. Major and Henry S. Millet, Kansas City, presented a symposium on "Child Mental Hygiene" at a meeting of the Labette County (Kansas) Mental Hygiene Society in Parsons, Kansas, November 9.

Dr. James S. McLester, Birmingham, Alabama, was a guest of the Dairy Council at a meeting in St. Louis on November 6. He spoke on "The Contribution of Nutrition to Present Day Living." A color and sound film, "Behind the Smile," was shown.

Dr. W. W. Graves, St. Louis, was honored by the St. Louis Medical Society on October 24 for his research work on the scapulae. He was presented with a gold medal and certificate of merit. The award was established in 1926 and since that time only two members have received it, Dr. Evarts A. Graham and Dr. Edward A. Doisy.

Dr. Edward A. Doisy, St. Louis, was the recipient of the St. Louis Award of \$1,000 on October 26. The award is the gift of an anonymous donor and Dr. Doisy is the seventh recipient of the award which was presented to him for his discovery of vitamin K, announced in September 1938. The presentation took place in the office of the Mayor.

The Missouri Hospital Association met in Jefferson City November 3 and 4. Dr. Frank R. Bradley, St. Louis, presided and gave the President's Address. Drs. Carl F. Vohs and Curtis H. Lohr, St. Louis, appeared on the program. Topics discussed at the session were "Medical Economics," "Group Hospital Service," "Government Health Program," "Nursing Education," "Hospitals and the Newspaper," and "Legal Problems of the Hospital."

The 11th annual meeting of the Central Association of Obstetricians and Gynecologists convened in Kansas City on November 2, 3 and 4. Dr. Hugh G. Hamilton, Kansas City, presented a talk on "Postpartum Labial or Paravaginal Hematoma," and Dr. Paul F. Fletcher, St. Louis, spoke on "A Study of the Possible Significance of the Vaginal Smear as an Additional Factor in the Diagnosis of Incomplete Abortion." Drs. L. M. Riordan and Fred Emmert, St. Louis, and J. Milton Singleton, George F. Pendleton and Paul A. Gempel, Kansas City, opened discussions of papers.

Appearing on the program of the thirty-third annual meeting of the Southern Medical Association at Memphis, Tennessee, November 21 to 24, were the following Missouri members: Drs. Hugh L. Dwyer, Frank C. Neff, Ferdinand C. Helwig, A. L. Skoog, Claude J. Hunt and Hjalmar E. Carlson, Kansas City; Alphonse McMahon, Daniel L. Sexton, Joseph W. Larimore, A. N. Arneson, Harry Hauptman, Brian A. Blades, Adolph H. Conrad, Adolph H. Conrad, Jr., Richard S. Weiss, Charles H. Eyermann, Willard Bartlett, Jr., J. Albert Key, Joseph E. Glenn, Warren R. Rainey, Lawrence T. Post, James B. Costen and F. R. Bradley, St. Louis; M. Pinson Neal and Dan G. Stine, Columbia.

Medical service for the Civilian Conservation Corps has until recently been furnished by the medical section of the Officers' Reserve Corps with the exception of a few doctors who were employed on a contract basis. A recent decision of the Director of this work and the War Department permitted the employment of doctors who are not Medical Reserve officers. This announcement was made together with the amount of the initial salary as \$2,600 per year. A further decision of the War Department has placed the initial salary as \$3,200 a year. Physicians interested in this type of service are requested to submit their applications to the office of the Surgeon, Headquarters, Seventh Corps Area, Federal Building, Omaha, Nebraska.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Alternaria spp., Fungus Extract 5%—Abbott
Aspergillus fumigatus, Fungus Extract 5%—Abbott
Aspergillus niger Group, Fungus Extract 5%—Abbott
Cephalothecium roseum, Fungus Extract 5%—Abbott
Hormodendrum spp., Fungus Extract 5%—Abbott
Monilia sitophilia, Fungus Extract 5%—Abbott
Mucor spp., Fungus Extract 5%—Abbott
Penicillium rubrum, Fungus Extract 5%—Abbott
Ustilago zeae (corn smut), Fungus Extract 5%—Abbott
Yeast, Fungus Extract 5%—Abbott
Tablets Barbitol—Abbott, 5 grains

Allen Laboratories, Inc.

Medipax Brand of Vaginal Tampon-Suppositories
With Merthiolate 1:2000
Medipax Brand of Vaginal Tampon-Suppositories
With Metaphen 1:2000

Armour Laboratories

Gastric Mucin—Armour
Gastric Mucin Powder—Armour
Gastric Mucin Granules—Armour

Baxter Laboratories

Sodium Citrate 2½% in Physiological Sodium Chloride Solution in the Transfuso Vac and Donor Set

Gane's Chemical Works, Inc.

Racephedrine
Racephedrine Sulfate

Gilliland Laboratories

Typhoid-Paratyphoid Bacterial Vaccine Immunizing, 50 cc. vial

International Vitamin Corp.

I. V. C. Cod Liver Oil

Lederle Laboratories, Inc.

Capsules Sulfapyridine—Lederle, 0.25 Gm.

Wm. S. Merrell Company

Ampul Bismuth Subsalcylate in Oil, 0.13 Gm. (2 grains), 1 cc.
Ampul Mercury Salicylate in Oil 0.065 Gm. (1 grain), 1 cc.
Ampul Mercury Salicylate in Oil 0.1 Gm. (1½ grains), 1 cc.

National Drug Co.

Antimeningococcic Serum, Refined and Concentrated
Immune Globulin (Human), one 2 cc. ampul-vial
Immune Globulin (Human), one 10 cc. ampul-vial

Smith-Dorsey Co., Inc.

Tablets Sulfanilamide, 5 grains

E. R. Squibb & Sons

Amniotin—Squibb

Amniotin in Oil, 2,000 International Units
Amniotin in Oil, 10,000 International Units
Amniotin in Oil, 20,000 International Units
Amniotin Capsules, 1,000 International Units
Amniotin Capsules, 2,000 International Units
Amniotin Capsules, 4,000 International Units
Amniotin Pessaries, 1,000 International Units
Amniotin Pessaries, 2,000 International Units

Ascorbic Acid—Squibb

Tablets Ascorbic Acid—Squibb, 25 mg.
Tablets Ascorbic Acid—Squibb, 50 mg.

Frederick Stearns & Co.

Gastric Mucin—Stearns

Gastric Mucin Powder—Stearns
Gastric Mucin Granules—Stearns

Wallace & Tiernan Products, Inc.

Azochloramid Saline Mixture 1:3300 Tablets, 8.5 grains

ORGANIZATION ACTIVITIES

PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

An eight point platform outlining the beliefs of the American Medical Association in connection with maintaining and improving the health of the people was presented by the Board of Trustees of the American Medical Association at the Annual Conference of Secretaries of Constituent State Medical Associations in Chicago, November 17 and 18.

The platform and discussion of the eight points as presented at the conference follows:

The American Medical Association advocates:

1. *The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.*

Today the medical and health functions of the United States are divided among a multiplicity of departments, bureaus and federal agencies. Thus, the United States Public Health Service is in the Federal Security department; the Maternal and Child Welfare Bureaus in the Department of Labor; the Food and Drugs administration in the Department of Agriculture; the Veterans' Administration and many other medical functions are separate bureaus of the government. The WPA, CCC and PWA are concerned with a similarity of efforts in the field of preventive medicine. The Federal Works Administration and the Federal Housing Administration also have some medical functions.

Since 1875, the American Medical Association has urged the establishment of a single agency in the federal government under which all such functions could be correlated in the interest of effi-

ciency, the avoidance of duplication and a saving of vast sums of money. Such a federal health agency, with a secretary in the cabinet, or a commission of five or seven members including competent physicians, would be able to administer the medical and health affairs of the government with far more efficiency than is now done.

2. The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

The physicians of the United States have given freely of their time and of their funds for the care of the sick. Their contributions to free medical service amount to at least \$1,000,000 a day. The physicians of this country have urged that every person needing medical care be provided with such care. They have urged also the allotment of funds for campaigns against maternal mortality, against venereal disease and for the investigation and control of cancer. The medical profession does not oppose appropriations by Congress of funds for medical purposes. It feels, however, that in many instances states have sought aid and appropriations for such functions, without any actual need on the part of the state, in order to secure such federal funds as might be available. It has also been impossible, under present technics, to meet actual needs which might exist in certain states with low per capita incomes, with needs far beyond those of wealthier states, in which vast sums are spent.

It is proposed here simply that Congress make available such funds as can be made available for health purposes; that these funds be administered by the federal health agency, mentioned in the first plank of this platform, and that the funds be allotted on proof of actual need to the federal health agency, when that need be for the prevention of disease, for the promotion of health or for the care of the sick.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

Obviously, if federal funds are made available to the individual states for the purposes mentioned in the second plank of this platform, there might well be a lessened tendency in many communities to devote the community's funds for the purpose and, in effect, to demand that the federal government take over the problem of the care of the sick. Hence, it is suggested that communities do their utmost to meet such needs with funds locally available before bringing their need to the federal health agency and that the federal health agency determine whether or not the community has done its utmost to meet such need before allotting federal funds for the purpose.

4. The development of a mechanism for meeting the needs of expansion of preventive medical serv-

ices with local determination of needs and local control of administration.

The medical profession is not static. It wishes to extend preventive medical service to all of the people within the funds available for such a purpose. Obviously, this will require not only a federal health agency which may make suggestions and initiate plans, but also a mechanism in each community for the actual expansion of preventive medical service and for the proper expenditure of funds developed both locally and federally. In the development of new legislation such mechanism may be suitably outlined.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

The medical profession does not yield to any other group in this country in its desire to extend medical care to all of those unable to provide themselves with medical service. The American Medical Association through its House of Delegates has already recognized the possible existence of a small group of persons able to provide themselves with the necessities of life commonly recognized as standard in their own communities but not capable of meeting a medical emergency. It is recognized, however, that only persons of the same community fully familiar with the circumstances can determine the number of people who come properly under such classification and that only persons in actual contact with such instances are capable of administering suitably and efficiently the medical care that may be required. Hence it is the platform of the American Medical Association that medical care be provided for the indigent and the medically indigent in every community but that local funds be utilized first and that local agencies determine the nature of the need and control the expenditure of such funds as may be developed either in the community or by the federal government.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

In the so-called National Health Program it is asserted that one half the counties of the United States are without suitable hospitals and vast sums are requested for the building of new hospitals. In contrast, reputable agencies within the medical profession assert that there are only thirteen counties more than thirty miles removed from a suitable hospital and that in eight of those thirteen counties there are five people per square mile. In the United States today the percentage of hospital beds per 1,000 of population is higher than that of any other country in the world. This fact is completely ignored by those who would indulge in a program for the building of great numbers of new hospitals.

Moreover, it seems to be taken for granted that hospital building has languished in recent years,

whereas, considerable numbers of hospitals have been built with federal funds by various state agencies and also by the PWA, the WPA and by the Federal Works Administration.

Analyses may indicate that in many instances such hospitals were built without adequate study as to the need which existed or as to the possible efficient functioning once a hospital was erected. Moreover, there is evidence that in recent years many of the hospitals of the United States known as nonprofit voluntary hospitals have had a considerable lack of occupancy due no doubt to the financial situation in considerable part. It seems logical to suggest then that such federal funds as may be available be utilized in providing the needy sick with hospitalization in these well established existing institutions before any attempt is made to indulge in a vast building program with new hospitals. In this point of view the American College of Surgeons, the American Hospital Association, the Catholic Hospital Association, the Protestant Hospital Association and practically every other interested voluntary body agree.

Again it has been argued that the demands for medical care in some sections of the country might require the importation of considerable numbers of physicians or the transportation of numbers of physicians in the areas in which they now are to other areas. In this connection it would seem to be obvious that a change in the economic status of the communities concerned would result promptly in the presence of physicians who might be seeking locations. The utilization of existing qualified facilities would be far more economical than any attempt to develop new facilities.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

In the United States today our sickness and death rates are lower than those of any great country in the world. This fact was recognized by the President of the United States when he sent the National Health Program to the Congress for careful study. The President emphasized that a low death rate may not mean much to a man who happens to be dying at the time of tuberculosis. The medical profession recognizes the importance of doing everything possible to prevent every unnecessary death. At the same time it has not been established by any available evidence that a change in the system of medical practice which would substitute salaried government doctors for the private practitioner or which would make the private practitioner subject to the control of public officials would in any way lower sickness and death rates.

There exists, of course, the fact that some persons are unable to obtain medical service in the circumstances in which they live and that others, surrounded by good facilities, do not have the funds

available to secure such services. Obviously, here again there is the question of economics as the basis of the difficulty and perhaps lack of organization in distribution of medical service and a failure to utilize new methods for the distribution of costs which might improve the situation.

The medical profession has approved prepayment plans to cover the costs of hospitalization and also prepayment plans on a cash-indemnity basis for meeting the costs of medical care. It continues, however, to feel that the development of the private practice of medicine which has taken place in this country has led to higher standards of medical practice and of medical service than are elsewhere available and that the maintenance of the quality of the service is fundamental in any health program.

8. Expansion of public health and medical services consistent with the American system of democracy.

Careful study of the history of the development of medical care in various nations of the world leads to the inevitable conclusion that the introduction of methods such as compulsory sickness insurance, state medicine and similar technics results in a trend toward communism or totalitarianism and away from democracy as the established form of government. The intensification of dependence of the individual on the state for the provision of the necessities of life tends to make the individual more and more the creature of the state rather than to make the state the servant of the citizen. Great leaders of American thought have repeatedly emphasized the fact that liberty is too great a price to pay for security. George Washington said, "He who seeks security through surrender of liberty loses both." Benjamin Franklin said, "They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety."

In these times when the maintenance of the American democracy seems to be the most important objective for all the people of this country, the people may well consider whether some of the plans and programs that have been offered for changing the nature of medical service are not in effect the first step toward an abandonment of the self-reliance, free will and personal responsibility that must be the basis of a democratic system of government.

SUPREME COURT DOES NOT PASS ON APPEAL FROM PROCTOR DECISION

The Supreme Court indicated on October 23 that it would not now pass on the suit brought by the Department of Justice charging the American Medical Association, three other medical organizations and individual physicians with conspiracy to violate the Sherman anti-trust law. The Department of Justice had appealed directly to the Supreme Court from the decision rendered by Justice Proctor.

tor of the District Court for the District of Columbia.

The October 28 issue of the *Journal of the American Medical Association* reprinted the following comments on the decision which appeared in the *Washington Post* under the caption, "A Proper Set-back."

"At some future date the Supreme Court may find it desirable to review the government's anti-trust case against the American Medical Association and the District Medical Society. The Department of Justice appears determined to fight Justice Proctor's decision to the last ditch. And the medical profession would certainly carry the dispute to the Supreme Court if the Proctor opinion should be overruled in the Court of Appeals.

"For the present, however, the Supreme Court has quite properly declined to review the case. It sees no reason for departure from the customary judicial procedure. No constitutional issue is involved in the charges against the medical association.

"The case turns merely upon interpretation of the anti-trust laws. The Department of Justice is attempting to stretch the Sherman act to provide protection for the Group Health Association against alleged restraints on the part of the organized medical profession.

"Should the Supreme Court set a precedent of accepting appeals directly from the federal district courts, where no constitutional issue is involved, it would soon be overburdened with litigation. The statute giving constitutional cases a right of way to the highest tribunal makes it all the more important for the court to maintain a rigid check on other petitions for review of less vital or complicated issues.

"There are many indications that the Anti-Trust Division has been unduly excited over the idea of prosecuting the medical association for alleged restraint of trade. In effect, the Supreme Court has sustained this criticism. It found nothing in the Anti-Trust Division's petition to justify singling out this case for special attention. If the division insists upon clinging to its strained interpretation of the anti-trust laws, it will at least have to rely upon the customary procedure for final judicial clarification."

OBITUARY

FRED F. ZELLE, M.D.

Dr. Fred Francis Zelle, St. Louis, was born in St. Louis on February 24, 1879. After taking an A.B. degree at Harvard in 1902 he entered the Washington University School of Medicine from which he was graduated in 1906. Then followed two years as junior and senior resident physician at the St. Louis City Female Hospital.

From 1908 until his death on January 19, 1939, he engaged in active practice in medicine and surgery. His practice was largely in the northern part of the city where he lived and had his office. He was one of the

chiefs of surgical service at the St. Louis Mullanphy Hospital and later he was on the staff at DePaul Hospital.

He never talked much, at least in public, but the number of patients who came to him for advice and help testified to the esteem of his neighbors and fellow citizens. A few years before his death Dr. Zelle learned that he had what he thought was an incurable malignant disease. He underwent an extensive operation and made an excellent recovery and promptly resumed his practice. Bravely he worked, always knowing of the lurking danger of recurrence but not allowing that threat to overshadow him. His death came unexpectedly of another ailment.

In 1910 he married Miss Amelia Edith Maunder who with two daughters, a son and two grandchildren survive.—W. F. in the *Weekly Bulletin* of the St. Louis Medical Society.

HENRY W. SCHULZ, M.D.

Dr. Henry W. Schulz, St. Louis, was born on August 16, 1869, in Prairie Town, Illinois, where he received his early education in the Lutheran parochial schools of the district. He later attended Concordia College at Springfield, Illinois, where he pursued his studies for three years. He then went to St. Louis and entered the St. Louis Medical College and was graduated in 1888. He died at the Lutheran Hospital on February 10, 1939, in his seventieth year.

Dr. Schulz was of the old school of family physicians who contributed much in his day to the welfare of his patients in South St. Louis. In a very personal way he was most solicitous of their well-being when they sought his counsel and advice. Through the years with the science of medicine becoming more intricate, he constantly sought help from those proficient in their particular field of medicine so that he might render better care to his people. His great interest in the better care of his patients was an important factor in the early development of the Lutheran Hospital of St. Louis, with which he was associated for approximately fifty years.

He is survived by his widow to whom we extend our sincere sympathy in her bereavement.—T. H. H. in the *Weekly Bulletin* of the St. Louis Medical Society.

ADONIRAM JUDSON CHALKLEY, M.D.

Dr. A. J. Chalkley, Lexington, a graduate of Washington University School of Medicine, St. Louis, 1905, died of chronic encephalitis on July 3, 1939, aged 61.

Dr. Chalkley was born in Chesterfield County, Virginia. He received his academic training at Randolph-Macon College. He was an instructor at Ouachita College for two years and at Wentworth Military Academy for two years before completing his study of medicine. After interning at the Missouri Pacific Hospital in St. Louis and the Missouri Pacific Hospital in Kansas City, he began his practice in Lexington and remained in practice there until he was forced to retire five years ago because of ill health. He took postgraduate courses in Chicago, New York, at Harvard University Medical School and at the Mayo Clinic.

He was a devoted member of the Presbyterian church, was active in the Masonic fraternity and in civic organizations. He was a member of the Lafayette County Medical Society and had served that Society as president and as delegate. He was elected an honor member of the Society in 1938. During the World War he served as Captain in the Medical Corps at Fort Riley, Kansas, and at Camp Green, Charlotte, North Carolina.

He is survived by his widow, Mrs. Anne Ireland Chalkley, a daughter and a son who is studying medicine.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

ASSOCIATE EDITORS: COUNCILORS OF THE TEN COUNCILOR DISTRICTS

COUNTY SOCIETY HONOR ROLL FOR 1939

(UNDER THIS HEAD WE LIST SOCIETIES WHICH HAVE
PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Chariton County Medical Society, December 15, 1938.

Perry County Medical Society, December 15, 1938.

Camden County Medical Society, December 23, 1938.

Ste. Genevieve County Medical Society, December 23, 1938.

Dent County Medical Society, January 25, 1939.

Stoddard County Medical Society, January 30, 1939.

Howard County Medical Society, February 15, 1939.

Macon County Medical Society, February 22, 1939.

Johnson County Medical Society, February 25, 1939.

Morgan County Medical Society, March 21, 1939.

Webster County Medical Society, March 28, 1939.

Carter-Shannon County Medical Society, March 30, 1939.

Holt County Medical Society, March 31, 1939.

Bates County Medical Society, April 1, 1939.

Lincoln County Medical Society, April 5, 1939.

Miller County Medical Society, April 5, 1939.

Moniteau County Medical Society, April 5, 1939.

Barry County Medical Society, April 6, 1939.

Dekalb County Medical Society, May 23, 1939.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society, July 20, 1939.

Mercer County Medical Society, July 21, 1939.

Linn County Medical Society, August 1, 1939.

Pettis County Medical Society, August 8, 1939.

Pulaski County Medical Society, September 1, 1939.

Boone County Medical Society, October 11, 1939.

Atchison County Medical Society, November 1, 1939.

SEVENTH COUNCILOR DISTRICT

E. P. HELLER, KANSAS CITY, COUNCILOR

The Nation knows of the corruption being uncovered in Kansas City and Jackson County. The State knows more intimately the facts and the forces involved in the local situation, and the men behind the cleaning up of one of the few remaining cesspools of political maladministration of our country. The medical profession is entitled to know what part the local profession has had in assisting in the clean-up.

The profession of Missouri is entitled to know that no reproach has been leveled at the direct medical care of the indigent sick and injured of Jackson County and Kansas City as supplied by hundreds of the members of Jackson County Medical Society without recompense. It is also entitled to know that the local medicopolitical machine did not just recently depart from the path of honest, non-partisan administration under the present regime, but had been drifting into that path for some years past. The wonder is that such excellent service to the indigent was possible under a corrupt city and county system.

The profession of Missouri is also entitled to know that numbered on the fact-finding Public Health Committee of the Forward Kansas City Committee, which was appointed in May 1939, are many of the leaders in medical organization who, despite the malignant insinuations of the entrenched politicians, proceeded to dig into the mess. Thus, the president, the president-elect of Jackson County Medical Society, three past presidents and the President of the Missouri State Medical Association all were members of the fact-finding committee which has recently turned in a report which is available to any member of the profession who cares to have it.

Early in the clean-up the Council of the Jackson County Medical Society expressed its willingness "to assist the people of Kansas City in operating their Health Department under the provisions of the City Charter . . ." at the same time rightfully denying "responsibility for the business administration (of the Health Department) or any other matter not within the province of the medical profession." This statement of the Society's stand, made public on May 2, 1939, was supplemented on June 24 by a resolution of the Council "approving the idea of specialization" and stating it as the "unanimous opinion of the Council that the man in charge of child hygiene and communicable diseases be especially trained in these lines." It also endorsed "any changes in personnel looking to the improvement of the Health Department." This was not in any way inconsistent with the stand taken by the Forward Public Health Committee on June 20, favoring a "full-time Health Director for Kansas City" thereby making available to the citizens of this community the talents and training of a specialist in public health. To assure the citizens and the profession of the services of a medical man instead of a sanitary engineer as the charter permits, the Citizen's Committee stipulated that the director be one holding the degrees of M.D. and Ph.D. As the incumbent director holds both degrees, this action could in no wise be interpreted as a move to oust or exclude him from his post, other findings being favorable.

Also in line with modern thought, the Forward Public Health Committee recommended a specialist, at adequate salary, serving full time in the Division of Laboratories, and the Department of Tuberculosis. Men with equal qualifications for communicable diseases, and maternal and child hygiene were also recom-

mended, but full time service was not insisted upon for the present.

The members of the Public Health Committee serving as citizens with a medical and a public health point of view under the auspices of the Forward Kansas City Committee are as follows: Drs. J. R. McVay, B. L. Elliott, R. J. Rinehart, J. M. Clayton (dentists), John Aull, R. McE. Schaufler, C. P. Hungate, F. D. Dickson, F. C. Helwig, George Hoxie, E. H. Skinner, J. Edw. Perry, Ira Lockwood, H. S. Valentine, E. Kip Robinson, Secretary, and Edward P. Heller, Chairman.

The fifty-eighth anniversary of Jackson County Medical Society will be observed on December 2, 1939. The Entertainment Committees of both the Society and the Woman's Auxiliary have announced plans for a "Forty Niners' Party." The event will be held in the Ball Room of the Hotel Muehlebach, and will have the locale and atmosphere of the Old West in the day of the Gold Rush. It is expected that the majority of the membership will attend in costume. A program has been planned that will appeal to physicians of all ages. Preparations are being made to accommodate 450 persons.

The new series of broadcasts sponsored by the American Medical Association and the National Broadcasting Company, "Medicine in the News," made its initial appearance on November 2 and will occur on successive Thursdays thereafter. It is being well received in Jackson County. All members are urged to recommend this program to their patients.

The Central Association of Obstetricians and Gynecologists, the largest organization of its kind in the United States, convened in Kansas City, November 2 to 4. Men from several states attended. Registration exceeded 300.

Jackson County Medical Society's second scientific program for 1939-1940 was presented on October 24 in the auditorium of Municipal Hospital, No. 1. Two hundred members and visiting physicians heard Dr. E. L. Tuohy of the Duluth Clinic, Duluth, Minnesota, speak on "An Adequate Dietary in Later Life With Special Emphasis on Equal Vitamin and Proteins." The new type of program instituted by the Society this year with movie subjects at the outset, the scientific subject following and the social hour with refreshments climaxing the evening has been successful as was indicated by unusually good attendance.

EIGHTH COUNCILOR DISTRICT

H. L. KERR, CRANE, COUNCILOR

The Lawrence-Stone County Medical Society sponsored a meeting of the Eighth Councilor District at the State Sanatorium, Mount Vernon, October 27. Approximately one hundred physicians from the fifteen counties comprising the district attended.

Appearing on the program in the afternoon were Dr. Sam A. Grantham, Joplin; Dr. F. T. H'Doubler, Springfield; Dr. A. W. McAlester, Kansas City, and Dr. E. Lee Miller, Kansas City. In the evening, papers were presented by Dr. James L. Mudd, St. Louis, and Dr. Alphonse McMahon, St. Louis.

A complimentary dinner was tendered the members present on behalf of the State Eleemosynary Board by the State Sanatorium of which Dr. R. H. Runde is superintendent. The principal speaker at the dinner was Mr. W. Ed. Jameson, Director of the State Eleemosynary Board.

Among guests from out of the District were Dr. E. C. Bohrer, West Plains; Dr. R. B. Denny, Creve Coeur;

Dr. E. R. Brown, University City; Dr. H. G. Frame, Mountain Grove; Dr. R. P. C. Wilson, Marshall; Dr. Ralph E. Duncan, Kansas City, and Mr. E. H. Bartelsmeyer, St. Louis.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Phelps-Crawford County Medical Society

The Phelps-Crawford County Medical Society held a dedication ceremony of the Nelle McFarland Memorial Hospital, Rolla, the evening of November 13.

A dinner was served at Bell's Cafe to seventy members and guests. Dr. A. A. Drake, Rolla, president of the Society, was toastmaster and the invocation was by Rev. H. P. Hunter, Rolla.

Dr. W. H. Breuer, St. James, spoke on "Hospital History." Dr. James R. McVay, Kansas City; Dr. Alphonse McMahon, St. Louis, and Dr. Cyrus E. Burford, St. Louis, presented addresses. Dr. E. C. Bohrer, West Plains, and Mr. E. H. Bartelsmeyer, St. Louis, spoke briefly.

The new hospital has a capacity of forty-five beds and is privately owned by Dr. A. Sidney McFarland. The hospital will maintain full time technicians in pathology, roentgen ray and physiotherapy. The staff consists of Drs. A. Sidney McFarland and A. A. Drake, Rolla; W. H. Breuer and E. A. Stricker, St. James, and R. E. Breuer, Newburg.

R. E. BREUER, M.D., Secretary.

South Central Counties Medical Society

The South Central Counties Medical Society met in Houston, October 13, at the Freeland Hotel. The following members were present: Drs. A. C. Ames, R. A. Ryan and R. W. Denny, Mountain Grove; W. F. Heron, J. R. Womack and L. M. Dillman, Houston; H. L. Reed and Leslie C. Randall, Licking; A. H. Thornburgh and E. R. Bohrer, West Plains; T. E. Ferrell, Mountain View; J. B. McDaniels, Summerville; J. R. Mott, Hartsville, and Garrett S. Hogg, Cabool.

Dr. Garrett S. Hogg, Cabool, was voted a member.

Following a brief business meeting there were several informal talks.

E. R. BOHRER, M.D., Secretary.

TENTH COUNCILOR DISTRICT

E. J. NIENSTEDT, SIKESTON, COUNCILOR

Cape Girardeau County Medical Society

The Cape Girardeau County Medical Society met at the Colonial Tavern, Cape Girardeau, October 9. In the absence of the president, Dr. J. H. Cochran, the chair was occupied by Dr. D. H. Hope. Other members present were Drs. W. F. Oehler, C. T. Herbert, R. A. Ritter, M. H. Shelby, D. B. Elrod, F. W. Hall, and C. A. W. Zimmermann.

A letter from Dr. Alphonse McMahon, St. Louis, thanking the Society for their expression of intended cooperation with the St. Louis Medical Society in its endeavor to secure the American Medical Association meeting in 1943 was read and ordered filed.

A letter from the Council on Industrial Health of the American Medical Association was read. It was decided to inquire the exact reasons for the questionnaire.

Copies of correspondence between Mr. L. J. Schultz, superintendent of schools, and Dr. James Chapman, Director of Division of Child Hygiene, State Board of Health, forwarded from the office of the Missouri State Medical Association, were read. The correspondence concerned the nine point health program of the State Board of Health. After some discussion Dr. M. H. Shel-

by moved that the secretary reply. The motion was seconded by Dr. W. F. Oehler and carried.

Meeting of November 13

The Cape Girardeau County Medical Society met at the Colonial Tavern, Cape Girardeau, November 13. Dr. J. H. Cochran, presiding. Other members present were: Drs. W. H. Wescoat, H. L. Cunningham, W. F. Oehler, M. H. Shelby, D. H. Hope, P. B. Nussbaum, O. L. Seabaugh and C. A. W. Zimmermann, Cape Girardeau.

A communication from the Mississippi Valley Medical Society inviting membership and calling attention to the hospital and sanitarium plan for members was read. The communication was favorably received and ordered filed.

A communication from the Missouri State Medical Association relative to WPA and other matters had been misplaced and was not brought up in toto and was insufficiently discussed.

A letter from Dr. W. J. Stewart, Columbia, director of the State Crippled Children's Service of Missouri, together with a reply from the secretary of the Society was read and after some discussion ordered filed.

A communication from Dr. G. Wilse Robinson, Kansas City, indicating a desire of the Committee on Mental Health to have some neurologist, selected by the Committee, address the Society was favorably received and ordered referred to the program committee for arrangement of a date.

A letter from the Audio Productions Inc. requesting an opportunity to show films on medical subjects was referred to the program committee.

Dr. J. H. Cochran read a letter from the government requesting applications from physicians for service in the CCC camps.

Dr. C. A. W. Zimmermann presented the history of a case of Buerger's disease.

C. A. W. ZIMMERMANN, M.D., Secretary.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met in Farmington at the St. Francois County Courthouse at 7:30 p. m. October 27. Dr. N. W. Hawkins, Bonne Terre, president, called the meeting to order.

Dr. John H. Hershey, St. Louis, gave an excellent discussion on "Indications for Surgery of the Stomach." The history was reviewed from 400 B.C. to the present time and lantern slides of all the past and present technics were presented. It was brought out that it was necessary that there be complete cooperation between the general practitioner, patient and the surgeon if permanent results are to be obtained.

Dr. U. P. Haw, Benton, discussed questionable newspaper publicity. Several methods of approach of combating this unfavorable influence were discussed but no definite action was taken. It was decided to continue the discussion with the idea of working out some definite plan of protecting public health.

G. TIVIS GRAVES, M.D., Secretary.

BOOK REVIEWS

MEDICAL JURISPRUDENCE AND TOXICOLOGY. By William D. McNally, A.B., M.D., Assistant Professor of Medicine and Lecturer in Toxicology, Rush Medical College, University of Chicago; Attending Toxicologist, Presbyterian Hospital; Attending Staff, St. Joseph's Hospital, Chicago. Philadelphia and London: W. B. Saunders Company. 1939. Price \$3.75.

This is a practical book for those not trained in this particular field. It is a good reference book as the

various subjects are written in a concise manner with the material well chosen. It contains a maximum amount of information with a minimum amount of reading.

E. C. F.

HEALTH OFFICER'S MANUAL. General Information Regarding the Administrative and Technical Problems of the Health Officer. By J. C. Geiger, M.D., Dr.P.H., Sc.D., LL.D., Director, Department of Public Health, City and County of San Francisco, California. Illustrated. Philadelphia and London: W. B. Saunders Company. 1939. Price \$10.00.

The purpose of this book is to systematize our present knowledge concerning disease so that it may be used administratively in public health. The purpose is full utilization of the facts which we do possess rather than the acquisition of further knowledge. The manual was written primarily for health officers and administrators and others concerned with the problems of public health work. The book is an excellent manual and would well justify one's study of it.

The organization of the public health department is taken up first. Clinics are necessary in the program although attended by many inherent evils. They are necessary for the control and treatment of venereal diseases, tuberculosis, obstetrical service, general diseases, emergency service, and immunization. Cooperation between the various health service agencies, national, state, city, community and school, is necessary to prevent duplication of services and to allow complete coverage of the various essential services. The services to be rendered are epidemiologic services, institutional services, inspection services, educational services, dental services and mental hygiene services. Engineering functions should include maintenance of pure food and water supply, sewage disposal, housing inspection, garbage inspection, gas and plumbing inspection, control and inspection of industrial and other hazards. Administrative functions should not exceed their proper sphere. A friendly attitude should be maintained with press and radio so as to obtain favorable publicity, and not the least of the health officer's service is public health education. Personnel should include well trained workers, both lay and professional. A department of records and statistics should be maintained.

Medical services will include the control and epidemiology of communicable diseases with isolation, contact inspection, food inspection and a utilization of the facts which we now possess concerning communicable diseases. Child hygiene will include infant, pre-school, and school groups with examinations and treatment of children whose families are unable to pay for the services of a private physician. The public health nurse is a necessary part of the modern health department and to her will go the task of school nursing, child hygiene, maternal health and the public health education of children and parents. Dental hygiene of children will be cared for through school supervision and necessary dental care, education and diet.

Mental hygiene will include child training, habit training, juvenile offenders, feeble-minded and mental cases. Institutions must be maintained compatible with the demands made upon them and must include emergency stations and services, ambulance services, municipal or county hospitals, home and social service.

Inspection and control services will include the following: Food and drug inspection, housing inspection, industrial hygiene, camp sites, and laboratories and such control of them as may be necessary.

Any person charged with the administration of public health regulations, or any physician interested in the functioning of a public health organization will be repaid for the time spent in a perusal of this manual.

S. C.



